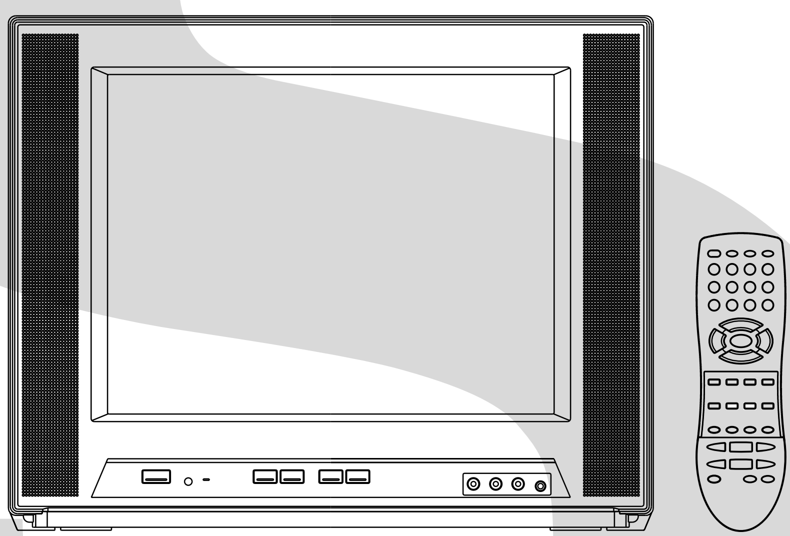
TOSHIBA

FILE NO. 050-200106

# SERVICE MANUAL

# COLOR TELEVISION

# *14AF41*



## SERVICING NOTICES ON CHECKING

### 1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

### 2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

### 3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

### 4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

### 5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

### 6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

### 7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

**(INSULATION CHECK PROCEDURE)**

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

**[Note 1]**
If you have not the 500V insulation resistance meter, use a Tester.

**[Note 2]**
External exposure metal: Antenna terminal
Earphone jack

## HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

## IMPORTANT

Inferior silicon grease can damage IC's and transistors.
When replacing an IC's or transistors, use only specified silicon grease (YG6260M).
Remove all old silicon before applying new silicon.

# GENERAL SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| **G-1** | **TV System** | CRT | CRT Size / Visual Size | 14 inch / 357mmV |
| | | | CRT Type | Flat |
| | | | Deflection | 90 degree |
| | | | Magnetic Field BV/BH | +0.45G/0.18G |
| | | Color System | | NTSC |
| | | Speaker | | 2 Speaker |
| | | | Position | Front Side |
| | | | Size | 1.6 x 2.8 Inch |
| | | | Impedance | 8 ohm |
| | | Sound Output | MAX | 2.5+2.5 W |
| | | | 10%(Typical) | 2.0+2.0 W |
| | | NTSC3.58+4.43 /PAL60Hz | | No |
| **G-2** | **Tuning System** | Broadcasting System | | US System M |
| | | Tuner and Receive CH | System | 1Tuner |
| | | | Destination | Others |
| | | | Tuning System | F-Synth |
| | | | Input Impedance | VHF/UHF 75 ohm |
| | | | CH Coverage | 2 - 69, 4A, A-5 - A-1, A - I, J - W, W+1 - W+84 |
| | | Intermediate Frequency | Picture(FP) | 45.75MHz |
| | | | Sound(FS) | 41.25MHz |
| | | | FP-FS | 4.50MHz |
| | | Preset CH | | No |
| | | Stereo/Dual TV Sound | | Yes |
| | | Tuner Sound Muting | | Yes |
| **G-3** | **Power** | Power Source | AC | 120V AC 60Hz |
| | | | DC | |
| | | Power Consumption | at AC | 80 W at AC 120 V 60 Hz |
| | | | Stand by (at AC) | 4 W at AC 120 V 60 Hz |
| | | | Per Year | -- kWh/Year |
| | | Protector | Power Fuse | Yes |
| **G-4** | **Regulation** | | Safety | UL |
| | | | Radiation | FCC |
| | | | X-Radiation | DHHS |
| **G-5** | **Temperature** | | Operation | +5oC ~ +40oC |
| | | | Storage | -20oC ~ +60oC |
| **G-6** | **Operating Humidity** | | | Less then 80% RH |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-7** | **On Screen Display** | Menu | | | Yes |
| | | | Menu Type | | Icon |
| | | | Picture | | Yes |
| | | | | Contrast | Yes |
| | | | | Brightness | Yes |
| | | | | Color | Yes |
| | | | | Tint | Yes |
| | | | | Sharpness | Yes |
| | | | Sound | | Yes |
| | | | | Bass | Yes |
| | | | | Treble | Yes |
| | | | | Balance | Yes |
| | | | | Stable Sound On/Off | Yes |
| | | | Set Up | | Yes |
| | | | | TV/CATV | Yes |
| | | | | Auto CH Memory | Yes |
| | | | | Add/ Delete | Yes |
| | | | Option | | Yes |
| | | | | Language | Yes |
| | | | | CH Label | Yes |
| | | | | Favorite CH | Yes |
| | | | | V-Chip | Yes |
| | | | | Color Stream DVD/DTV | Yes |
| | | | Control Level | | Yes |
| | | | | Volume | Yes |
| | | | | Brightness | Yes |
| | | | | Contrast | Yes |
| | | | | Color | Yes |
| | | | | Tint (NTSC Only) | Yes |
| | | | | Sharpness | Yes |
| | | | | Tuning | No |
| | | | | Bass | Yes |
| | | | | Treble | Yes |
| | | | | Balance | Yes |
| | | | | Back Light | No |
| | | | Stereo,Audio Output,SAP | | Yes |
| | | | Video | | Yes |
| | | | Color Stream | | Yes |
| | | | Channel(TV/Cable) | | Yes |
| | | | CH Label | | Yes |
| | | | Sleep Timer | | Yes |
| | | | Sound Mute | | Yes |
| | | | V-chip Rating | | Yes |
| **G-8** | **OSD Language** | | | | English French Spanish |
| | | | OSD Language Setting | | English |
| **G-9** | **Clock and Timer** | Sleep Timer | | Max Time | 120 Min |
| | | | | Step | 10 Min |
| | | On/Off Timer | | Program(On Tim / Off Tim) | No |
| | | Wake Up Timer | | | No |
| | | Timer Back-up (at Power Off Mode) | | more than | -- Min Sec |

# GENERAL SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| G-10 | **Remote Control** | Unit | | RC-DU |
| | | Glow in Dark Remocon | | Yes |
| | | Format | | Toshiba |
| | | Custom Code | | TV:40-BFh |
| | | Power Source | Voltage(D.C) | 3V |
| | | | UM size x pcs | UM-4 x 2 pcs |
| | | Total Keys | | 42 Keys |
| | | Keys | Power | Yes |
| | | | 1 | Yes |
| | | | 2 | Yes |
| | | | 3 | Yes |
| | | | 4 | Yes |
| | | | 5 | Yes |
| | | | 6 | Yes |
| | | | 7 | Yes |
| | | | 8 | Yes |
| | | | 9 | Yes |
| | | | 0 | Yes |
| | | | 100 | Yes |
| | | | CH Up/+ | Yes |
| | | | CH Down/- | Yes |
| | | | Volume Up/+ | Yes |
| | | | Volume Down/- | Yes |
| | | | C.C.(TV/Caption/Text) | Yes |
| | | | CH1/CH2 | Yes |
| | | | TV/Video(Input Select) | Yes |
| | | | CH RTN(Quick View) | Yes |
| | | | SLEEP | Yes |
| | | | RECALL(Call) | Yes |
| | | | Reset | Yes |
| | | | Menu/Enter | Yes |
| | | | Mute | Yes |
| | | | Exit | Yes |
| | | | MTS(Audio Select) | Yes |
| | | | Fav. Up | Yes |
| | | | Fav. Down | Yes |
| | | Multi Brand Keys | CH Up(VCR) | Yes |
| | | | CH Down(VCR) | Yes |
| | | | Pause/Still | Yes |
| | | | TV/VCR(VCR) | Yes |
| | | | FF | Yes |
| | | | Rew | Yes |
| | | | Rec | Yes |
| | | | Play | Yes |
| | | | Stop | Yes |
| | | | TV | Yes |
| | | | VCR | Yes |
| | | | Cable | Yes |
| | | | CODE | Yes |

# GENERAL SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| **G-11** | **Features** | Auto Degauss | | Yes |
| | | Auto Shut Off | | Yes |
| | | Canal+ | | No |
| | | CATV | | Yes |
| | | Anti-theft | | No |
| | | Rental | | No |
| | | Memory(Last CH) | | Yes |
| | | Memory(Last Volume) | | Yes |
| | | V-Chip | | Yes |
| | | | Type | USA,Toshiba Type |
| | | BBE | | No |
| | | Auto Search | | No |
| | | CH Allocation | | No |
| | | SAP | | Yes |
| | | Channel Lock | | No |
| | | Just Clock Function | | No |
| | | Game Position | | No |
| | | CH Label | | Yes |
| | | VM Circuit | | No |
| | | Full OSD | | No |
| | | Premiere | | No |
| | | Comb Filter | | Yes |
| | | | | 2 Lines |
| | | Auto CH Memory | | Yes |
| | | Hotel Lock | | No |
| | | Closed Caption | | Yes |
| | | Stable Sound | | Yes |
| | | FBT Leak Test Protect | | Yes |
| | | Favorite CH | | Yes |
| **G-12** | **Accessories** | Owner's Manual | Language | English |
| | | | W/ Warranty | Yes |
| | | Remote Control Unit | | Yes |
| | | Rod Antenna | | No |
| | | | Poles | |
| | | | Terminal | |
| | | Loop Antenna | | No |
| | | | Terminal | - |
| | | U/V Mixer | | No |
| | | DC Car Cord (Center+) | | No |
| | | Guarantee Card | | No |
| | | Warning Sheet | | No |
| | | Circuit Diagram | | No |
| | | Antenna Change Plug | | No |
| | | Service Station List | | No |
| | | Important Safey Instructions | | Yes |
| | | Dew/AHC Caution Sheet | | No |
| | | AC Plug Adapter | | No |
| | | Quick Set-up Sheet | | No |
| | | Battery | | Yes |
| | | | UM size x pcs | UM-4 x 2 |
| | | | OEM Brand | No |
| | | AC Cord | | No |
| | | AV Cord (2Pin-1Pin) | | No |
| | | Registration Card (NDL Card) | | Yes |
| | | PTB Sheet | | No |
| | | ESP Card | | Yes |
| | | 300 ohm to 75 ohm Antenna Adapter | | No |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| G-13 | Interface | Switch | Front | Power | Yes |
| | | | | System Select | No |
| | | | | Main Power SW | No |
| | | | | Sub Power | No |
| | | | | Channel Up | Yes |
| | | | | Channel Down | Yes |
| | | | | Volume Up | Yes |
| | | | | Volume Down | Yes |
| | | | Rear | AC/DC | No |
| | | | | TV/CATV Selector | No |
| | | | | Degauss | No |
| | | | | Main Power SW | No |
| | | Indicator | | Power | Yes(RED) |
| | | | | Stand-by | No |
| | | | | On Timer | No |
| | | Terminals | Front | Video Input = VIDEO3 | RCA |
| | | | | Audio Input = VIDEO3 | RCA x 2 |
| | | | | Other Terminal | Head Phone |
| | | | Rear | Video Input(Rear1) = VIDEO1 | RCA |
| | | | | Video Input(Rear2) = VIDEO2 | RCA |
| | | | | Audio Input(Rear1) = VIDEO1 | RCA x 2 |
| | | | | Audio Input(Rear2) = VIDEO2 | RCA x 2 |
| | | | | Video Output | RCA |
| | | | | Audio Output | RCA x 2 |
| | | | | Euro Scart | No |
| | | | | Color Stream | RCA x 3 |
| | | | | S Input | Yes |
| | | | | Diversity | No |
| | | | | Ext Speaker | No |
| | | | | DC Jack 12V(Center +) | No |
| | | | | VHF/UHF Antenna Input | F Type |
| | | | | AC Outlet | No |
| G-14 | Set Size | | | Approx. W x D x H (mm) | 432 x 386 x 344.5 |
| G-15 | Weight | | | Net (Approx.) | 11.0kg ( 24.3 lbs) |
| | | | | Gross (Approx.) | 13.0 kg ( 28.7 lbs) |
| G-16 | Carton | | Master Carton | | No |
| | | | | Content | ---- Sets |
| | | | | Material | -- /-- |
| | | | | Dimensions W x D x H(mm) | -- x -- x -- |
| | | | | Description of Origin | -- |
| | | | Gift Box | | Yes |
| | | | | Material | Double/Brown |
| | | | | Dimensions W x D x H(mm) | 515 x 460 x 423 |
| | | | | Design | As per Buyer's |
| | | | | Description of Origin | Yes |
| | | | Drop Test | | Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces |
| | | | | Height (cm) | 62 |
| | | | Container Stuffing | | 575 Sets/40' container |
| G-17 | Cabinet Material | | | Cabinet Front | PS 94V0 DECABROM |
| | | | | Cabinet Rear | PS 94V0 DECABROM |

# DISASSEMBLY INSTRUCTIONS

## 1. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

**REMOVAL**

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 1-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

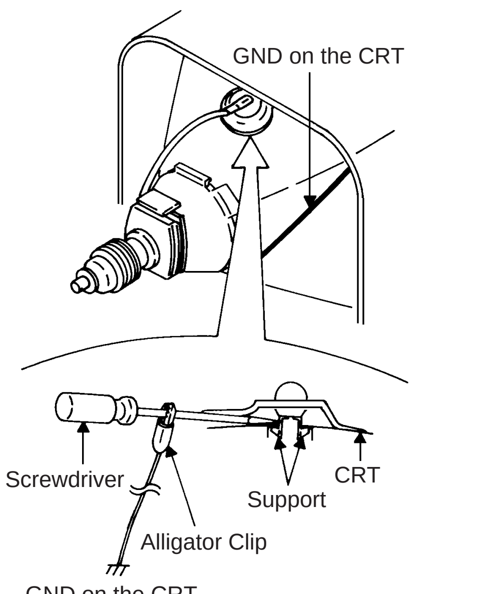


Fig. 1-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 1-2.)**

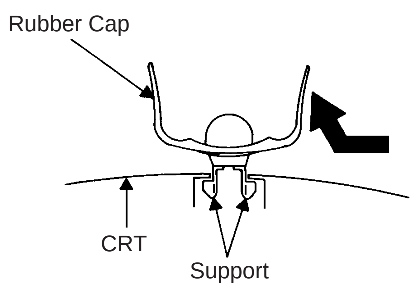


Fig. 1-2

3. After one side is removed, pull in the opposite direction to remove the other.

**NOTE**

Take care not to damage the Rubber Cap.

**INSTALLATION**

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 1-3.)**

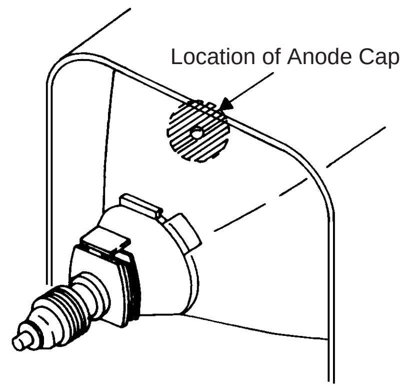
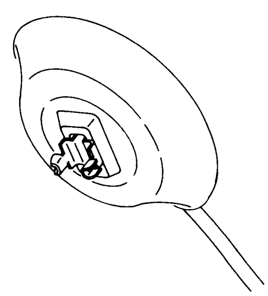


Fig. 1-3

**NOTE**

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 1-4.)**


Fig. 1-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 1-5**.

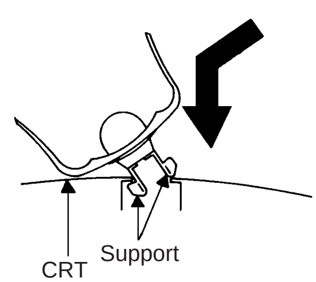


Fig. 1-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

# DISASSEMBLY INSTRUCTIONS

## 2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

### REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 2-1.)**

   **NOTE**

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

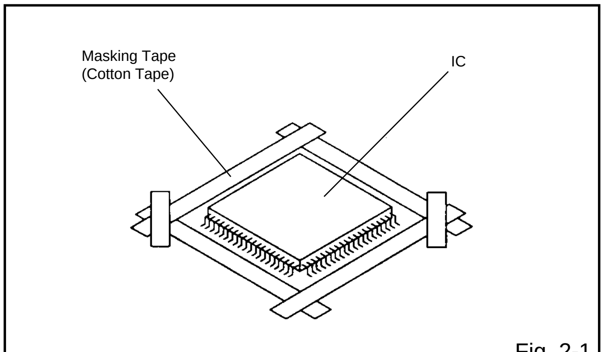


Fig. 2-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 2-2.)**

   **NOTE**

   Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

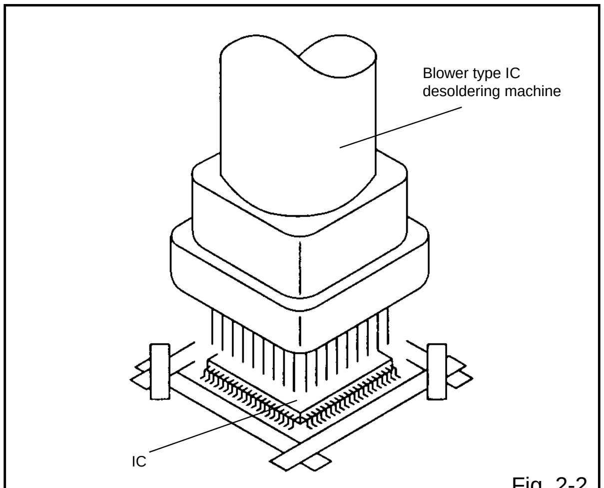


Fig. 2-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 2-3.)**

   **NOTE**

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

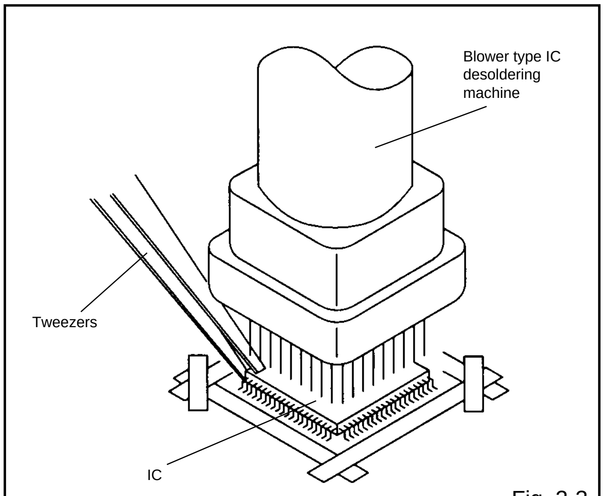


Fig. 2-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 2-4.)**

   **NOTE**

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

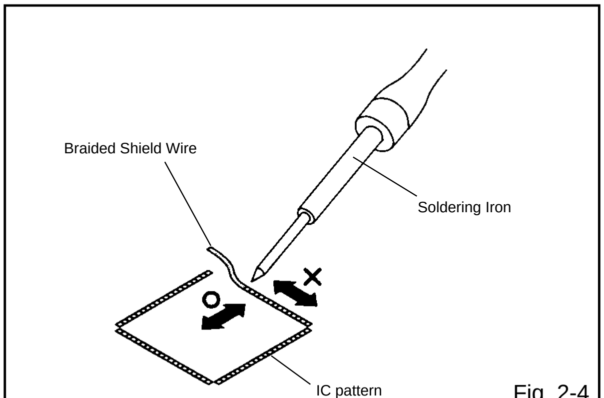


Fig. 2-4

# DISASSEMBLY INSTRUCTIONS

## INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 2-5.)**

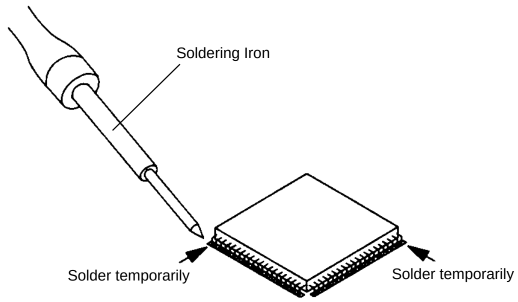



Fig. 2-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 2-6.)**

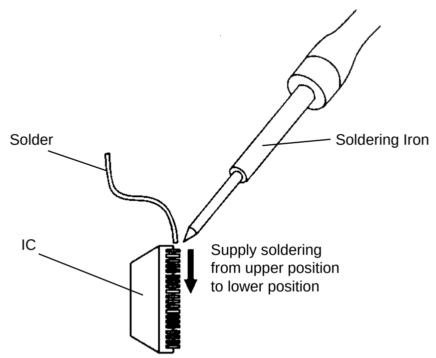



Fig. 2-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 2-7.)**

   **NOTE**

   Do not absorb the solder to excess.

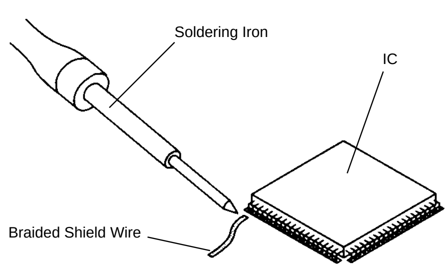



Fig. 2-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 2-8.)**

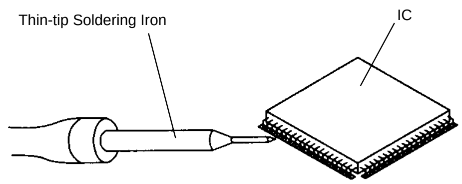



Fig. 2-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   **NOTE**

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

# SERVICE MODE LIST

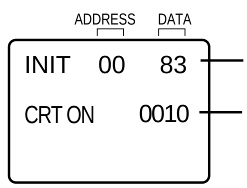
This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter the Service Mode, press both set key and remote control key for more than 1 second.

| Set Key | Remocon Key | Operations |
|---|---|---|
| VOL. (-) MIN | 0 | Releasing of V-CHIP PASSWORD. |
| VOL. (-) MIN | 1 | Initialization of the factory.<br>NOTE: Do not use this for the normal servicing. |
| VOL. (-) MIN | 6 | POWER ON total hours is displayed on the screen.<br>Refer to the "CONFIRMATION OF USING HOURS".<br><br>Can be checked of the INITIAL DATA of MEMORY IC.<br>Refer to the "NOTE FOR THE REPLACING OF MEMORY IC". |
| VOL. (-) MIN | 8 | Writing of EEPROM initial data.<br>NOTE: Do not use this for the normal servicing. |
| VOL. (-) MIN | 9 | Display of the Adjustment MENU on the screen.<br>Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment). |

# CONFIRMATION OF USING HOURS

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second.
3. After the confirmation of using hours, turn off the power.




Initial setting content of MEMORY IC.

POWER ON total hours.
= (16 x 16 x 16 x thousands digit value)
+ (16 x 16 x hundreds digit value)
+ (16 x tens digit value)
+ (ones digit value)

**FIG. 1**

# NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

| INI | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 | +8 | +9 | +A | +B | +C | +D | +E | +F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | E1 | C3 | CF | 00 | 31 | B3 | 27 | 17 | BB | A8 | F4 | 44 | 00 | 00 | 00 | 4A |
| 10 | 0F | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

**Table 1**

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button **(6)** on the remote control for more than 1 second. ADDRESS and DATA should appear as FIG 1.
3. ADDRESS is now selected and should "blink". Using the VOL. UP/DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using VOL. UP/DOWN button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

# ELECTRICAL ADJUSTMENTS

## 1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

### CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
  Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease.
  Remove all old silicon before applying new silicon.

**Prepare the following measurement tools for electrical adjustments.**

1. Oscilloscope
2. Digital Voltmeter

### On-Screen Display Adjustment

1. In the condition of NO indication on the screen.
   Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 1 second to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

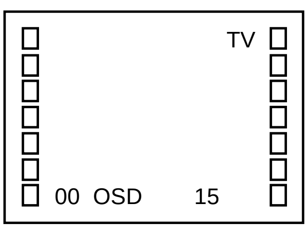



Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
3. Press the MENU button on the remote control to end the adjustments.

| NO. | FUNCTION | NO. | FUNCTION |
|---|---|---|---|
| 00 | OSD H | 17 | SUBCONT |
| 01 | CUT OFF | 18 | UNI COL |
| 02 | RF. AGC | 19 | --- |
| 03 | --- | 20 | TINT |
| 04 | H. POSI | 21 | SHARP |
| 05 | V. POSI | 22 | RGB CONT |
| 06 | H. SIZE | 23 | PARABOLA |
| 07 | V. SIZE | 24 | TRAPEZIU |
| 08 | V. CENT | 25 | COR TOP |
| 09 | V. LIN | 26 | COR BTM |
| 10 | VS. CORR | 27 | V EHT |
| 11 | G. DRV | 28 | H EHT |
| 12 | B. DRV | 29 | FM. LVL |
| 13 | R. BIAS | 30 | LEVEL |
| 14 | G. BIAS | 31 | SEP1 |
| 15 | B. BIAS | 32 | SEP2 |
| 16 | BRI | 33 | T. STE |

Fig. 1-2

## 2. BASIC ADJUSTMENTS

### 2-1: CONSTANT VOLTAGE

1. Set condition is AV MODE without signal.
2. Connect the digital voltmeter to **TP002**.
3. Adjust the **VR502** until the digital voltmeter is 115 ± 1V.

### 2-2: RF AGC

1. Receive a 70dB monoscope pattern.
2. Connect the digital voltmeter between the **TP001** and the **GND**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF. AGC".
4. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 1.95 ± 0.05V.

### 2-3: CUT OFF

1. Adjust the unit to the following settings.
   G. DRIVE=64, B. DRIVE=64, R. BIAS=32, G. BIAS=32, B. BIAS=32, BRIGHTNESS=64, UNI COLOR=50.
2. Place the set with Aging Test for more than 15 minutes.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
4. Adjust the **Screen Volume** until a dim raster is obtained.

### 2-4: WHITE BALANCE

**NOTE:** Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the adjustment control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "R. BIAS".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R. BIAS.
6. Press the CH. UP/DOWN button on the remote control to select the "G. DRV", "B. DRV", "G. BIAS" or "B. BIAS".
7. Using the VOL. UP/DOWN button on the remote control, adjust the G. DRV, B. DRV, G. BIAS or B. BIAS.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

### 2-5: FOCUS

1. Receive a 70dB monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

### 2-6: HORIZONTAL POSITION

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(04)** on the remote control to select "H. POSI".
4. Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.

# ELECTRICAL ADJUSTMENTS

### 2-7: HORIZONTAL SIZE

**NOTE:** Adjust after performing adjustments in section 2-6.

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "H. SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes 10 ± 2%.

### 2-8: VERTICAL POSITION

**NOTE:** Adjust after performing adjustments in section 2-7.

1. Receive the center cross signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "V. POSI".
3. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

### 2-9: VERTICAL SIZE

**NOTE:** Adjust after performing adjustments in section 2-8.

1. Receive the crosshatch signal from the Pattern Generator.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V. SIZE".
3. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
4. Receive a broadcast and check if the picture is normal.

### 2-10: PARABOLA

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "PARABOLA".
4. Press the VOL. UP/DOWN button on the remote control until the right and left vertical lines are straight.

### 2-11: TRAPEZIUM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(24)** on the remote control to select "TRAPEZIU".
4. Press the VOL. UP/DOWN button on the remote control until the both vertical lines of the screen become parallel.

### 2-12: CORNER CORR TOP

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(25)** on the remote control to select "COR TOP".
4. Press the VOL. UP/DOWN button on the remote control until the upper section of the both ends vertical lines are straight.

### 2-13: CORNER CORR BOTTOM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "COR BTM".
4. Press the VOL. UP/DOWN button on the remote control until the bottom section of the both ends vertical lines are straight.

### 2-14: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-1)**

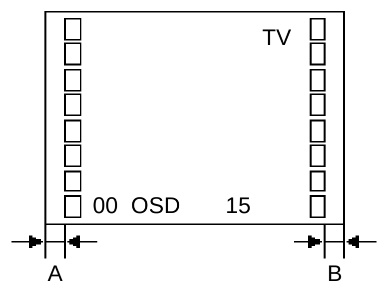



Fig. 2-1

### 2-15: LEVEL

1. Receive a 70dB monoscope pattern.
2. Connect the AC voltmeter to **TP901**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(30)** on the remote control to select "LEVEL".
4. Press the VOL. UP/DOWN button on the remote control until the AC voltmeter is 75 ± 2mV.

# ELECTRICAL ADJUSTMENTS

## 2-16: SEPARATION 1, 2

1. Receive the stereo signal (L=2KHz, R=400Hz).
2. Connect the AC voltmeter to **AUDIO OUT JACK** though stereo filter (L=400Hz, R=2KHz).
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(31)** on the remote control to select "SEP1".
4. Press the VOL. UP/DOWN button on the remote control until the output of L-CH and R-CH become minimum.
5. Press the CH UP button once the set to "SEP2" mode.
6. Press the VOL. UP/DOWN button on the remote control until the output of L-CH and R-CH become minimum.
7. Press the CH DOWN button once the set to "SEP1" mode.
8. Repeat step  4 to step 7 several times.
   The output difference of the between with Filter and without Filter should be more than 25db for both L and R.

## 2-17: BRIGHTNESS

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "BRI".
2. Press the VOL. UP/DOWN button on the remote control until the brightness step No. becomes "68"
3. Press the TV/VIDEO button on the remote control to set to the AV mode. Then perform the above adjustments 1~2.
4. Press the TV/VIDEO button on the remote control to set to the CS mode. Then perform the above adjustments 1~2.

## 2-18: UNI-COLOR

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(18)** on the remote control to select "UNI COL".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "49"
3. Press the TV/VIDEO button on the remote control to set to the AV mode.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(18)** on the remote control to select "UNI COL".
5. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "49"
6. Press the TV/VIDEO button on the remote control to set to the CS mode. Then perform the above adjustments 4~5.

## 2-19: SUB TINT/SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP806**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(20)** on the remote control to select "TINT".
4. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line **(Refer Fig. 2-2)**.
5. Connect the oscilloscope to **TP804**.
6. Press the CH DOWN button 3 times to set to "SUBCONT" mode.
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 100% of the white level. **(Refer to Fig. 2-3)**
8. Receive the color bar pattern. (Audio Video Input)
9. Press the TV/VIDEO button on the remote control to set to the AV mode. Then perform the above adjustments 2~7.
10. Receive the color bar pattern. (Audio Video Input)
11. Press the TV/VIDEO button on the remote control to set to the CS mode. Then perform the above adjustments 2~6.
12. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 100% of the white level. **(Refer to Fig. 2-3)**

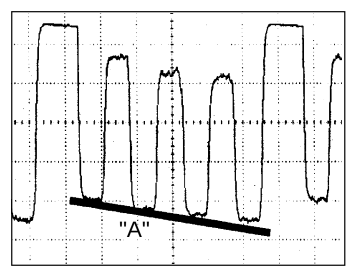



Fig. 2-2

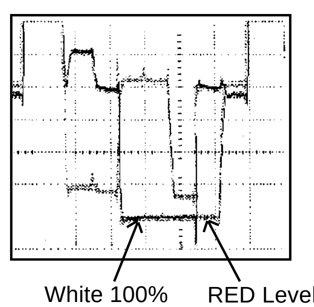



Fig. 2-3

# ELECTRICAL ADJUSTMENTS

## 3. PURITY AND CONVERGENCE ADJUSTMENTS

**NOTE**

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

### 3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

### 3-2: PURITY

**NOTE**

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

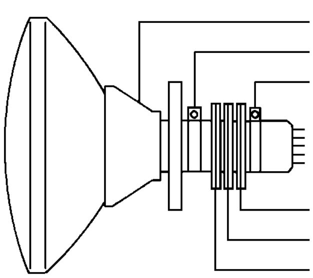



**Fig. 3-1**

### 3-3: STATIC CONVERGENCE

**NOTE**

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

### 3-4: DYNAMIC CONVERGENCE

**NOTE**

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

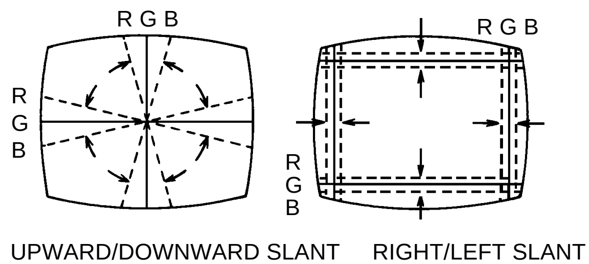
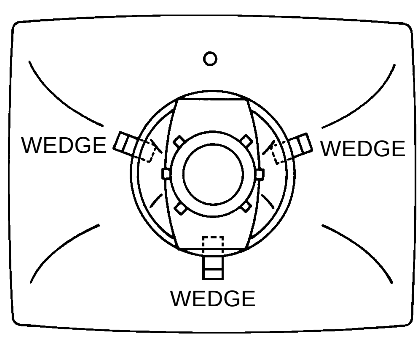


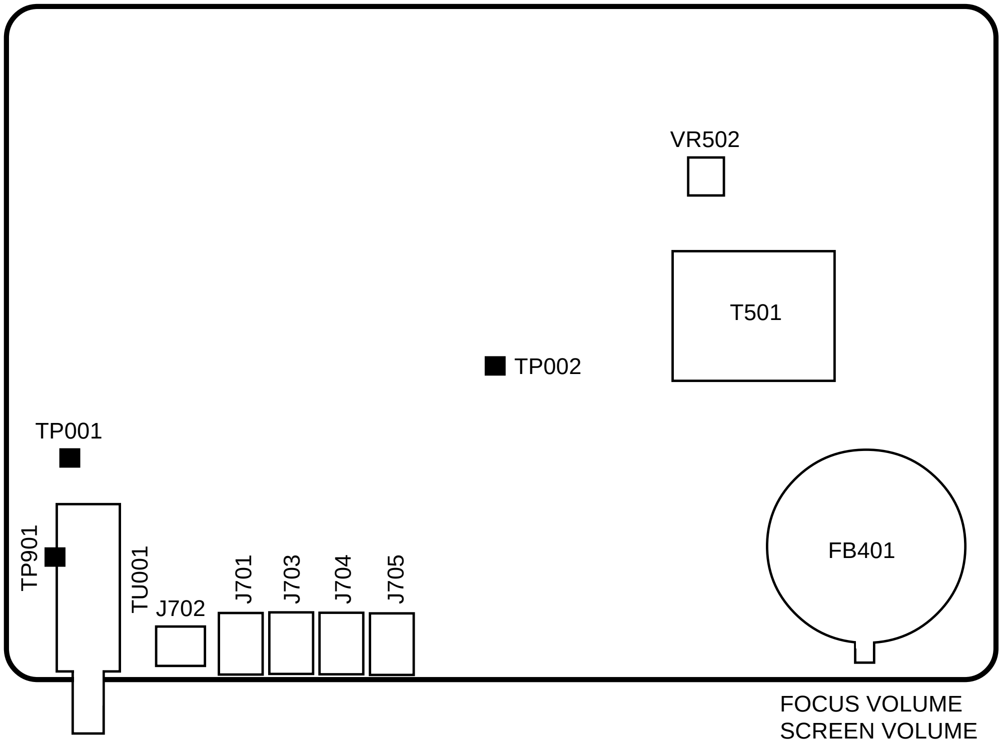

**Fig. 3-2-a**



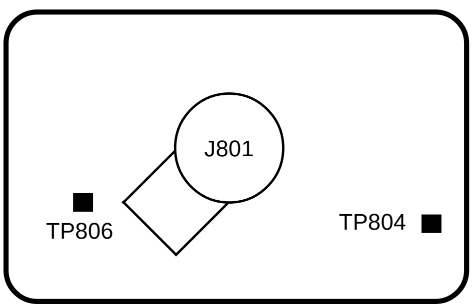

WEDGE POSITION

**Fig. 3-2-b**

# MAJOR COMPONENTS LOCATION GUIDE

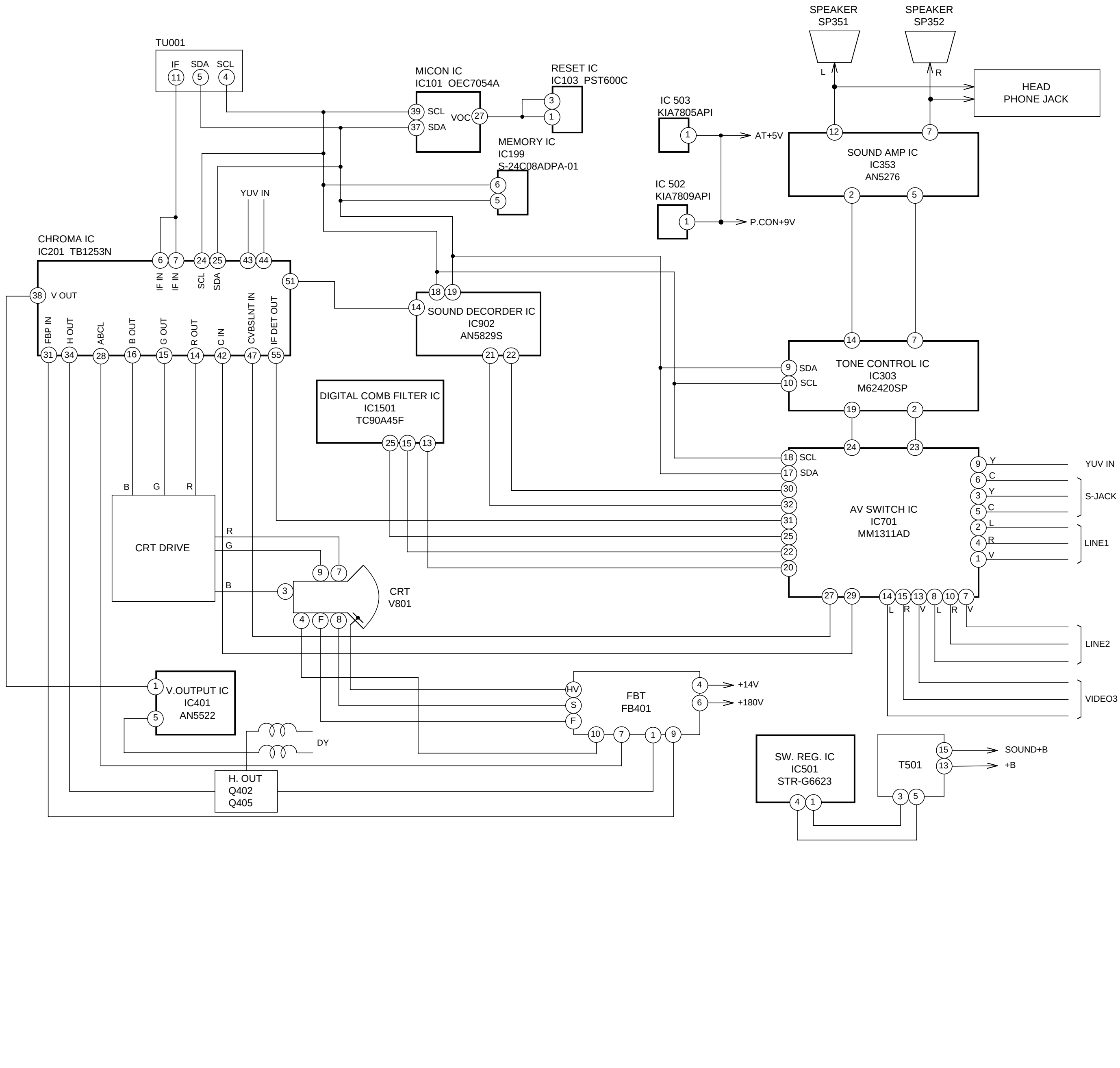



**MAIN PCB**




**CRT PCB**

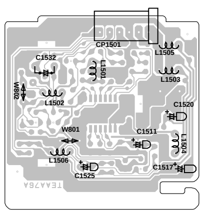
# BLOCK DIAGRAM



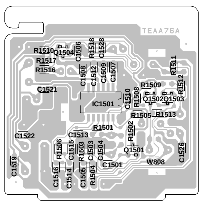
**PRINTED CIRCUIT BOARDS**

**COMB**

**(INSERTED PARTS)**
**SOLDER SIDE**

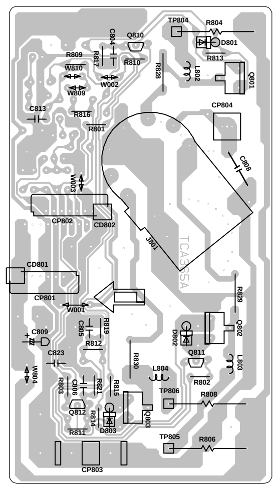


**(CHIP MOUNTED PARTS)**
**SOLDER SIDE**

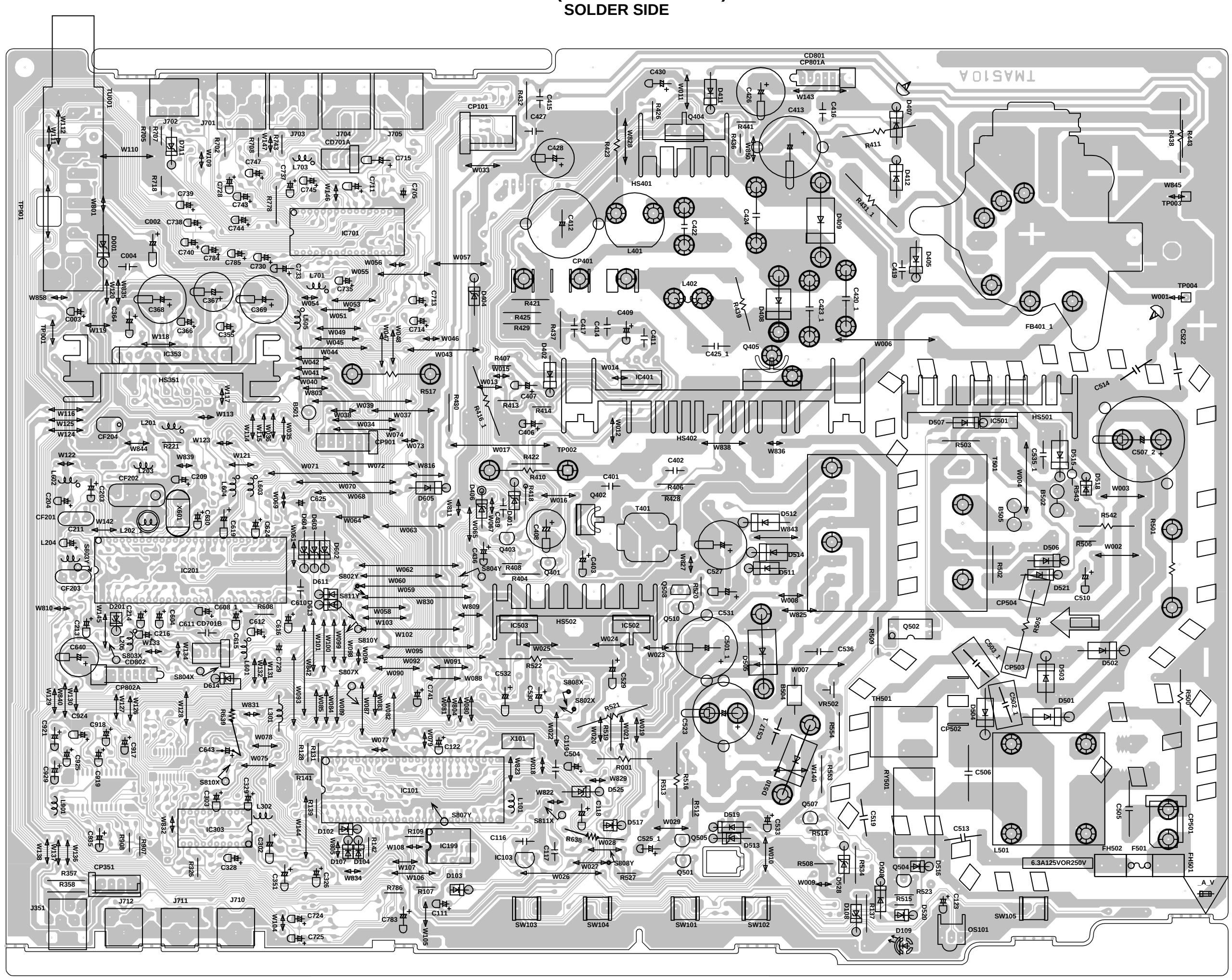


**CRT**

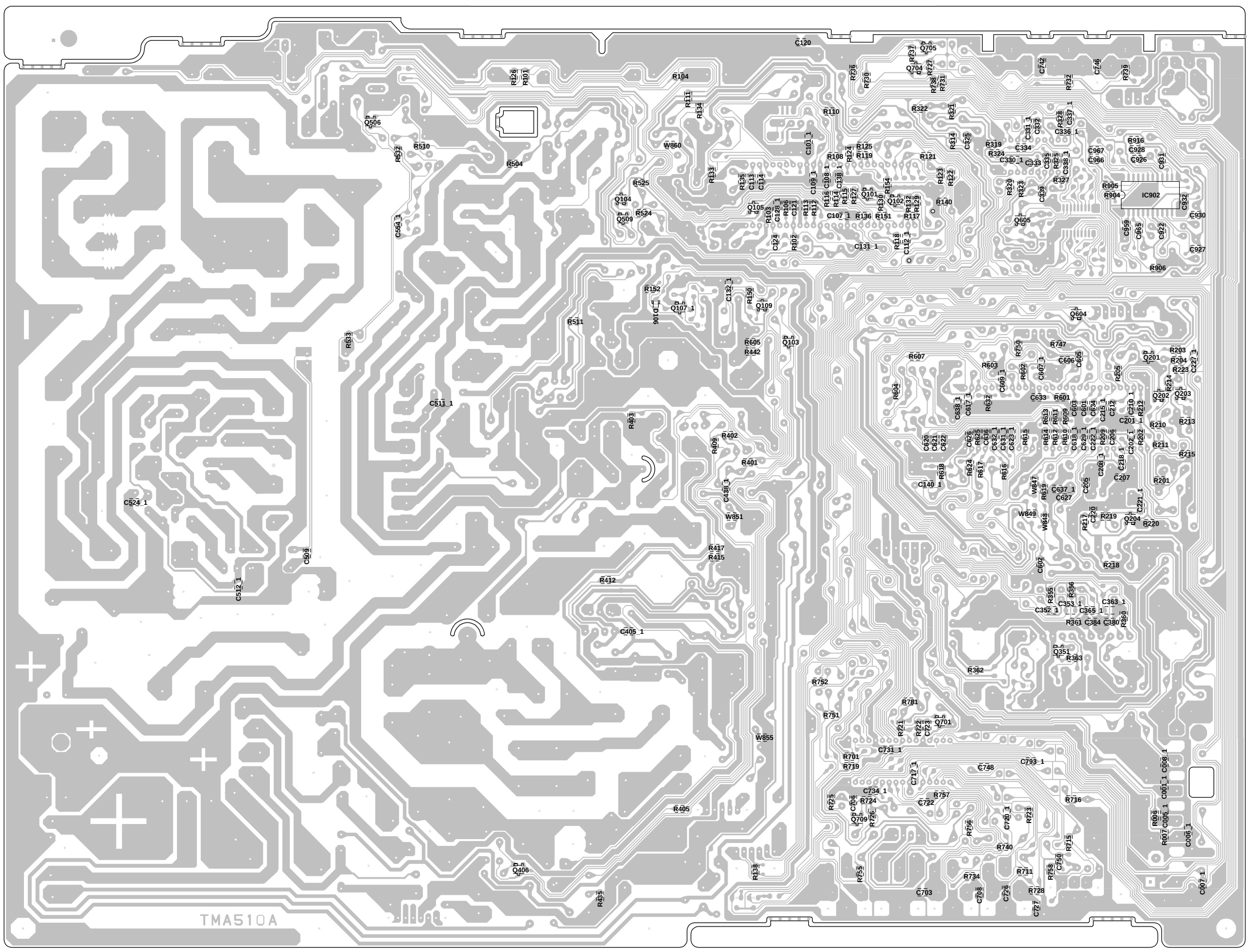
**SOLDER SIDE**



## PRINTED CIRCUIT BOARDS
## MAIN (INSERTED PARTS )
### SOLDER SIDE

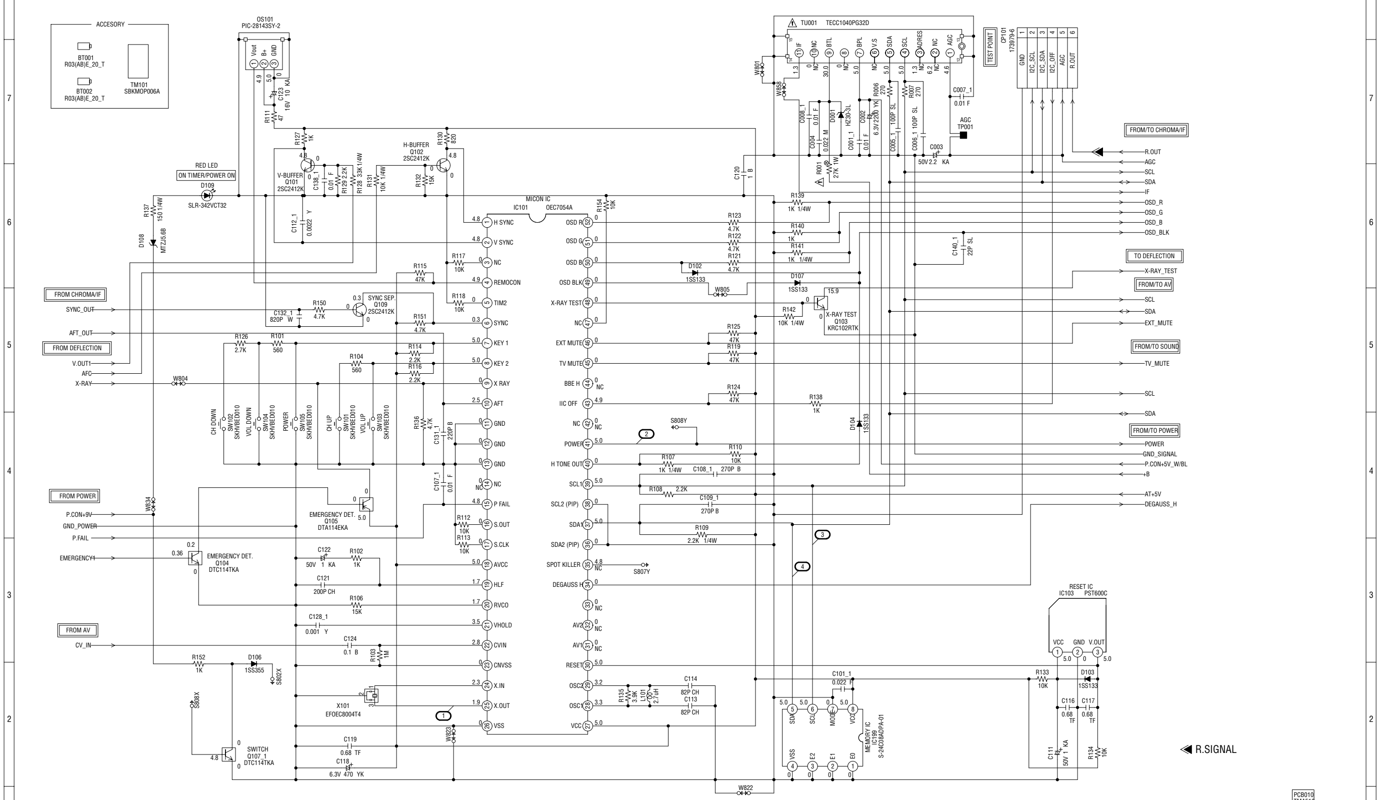


**PRINTED CIRCUIT BOARDS**
**MAIN (CHIP MOUNTED PARTS)**
**SOLDER SIDE**



# MICON/TUNER SCHEMATIC DIAGRAM

(MAIN PCB)



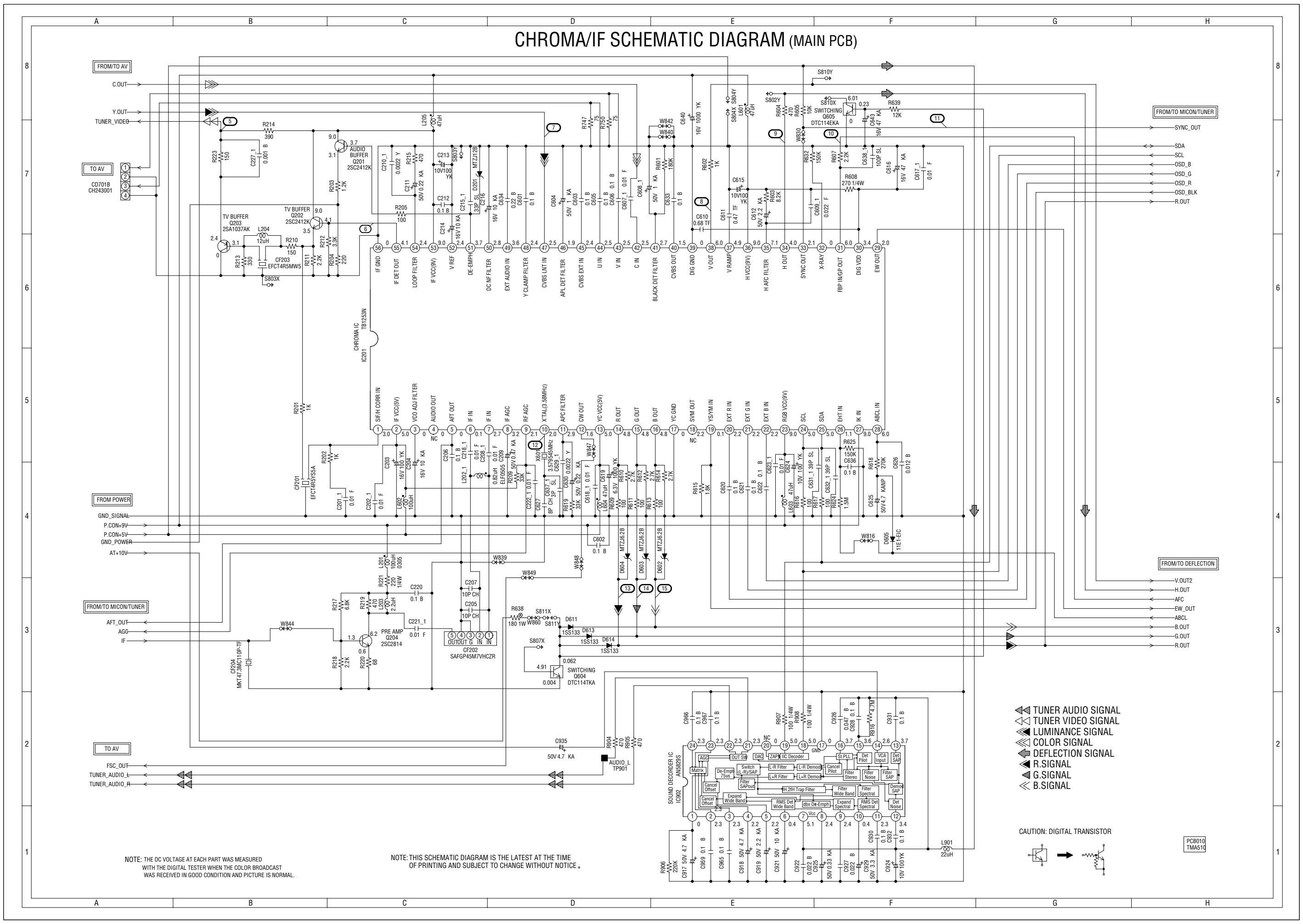

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

# CHROMA/IF SCHEMATIC DIAGRAM (MAIN PCB)

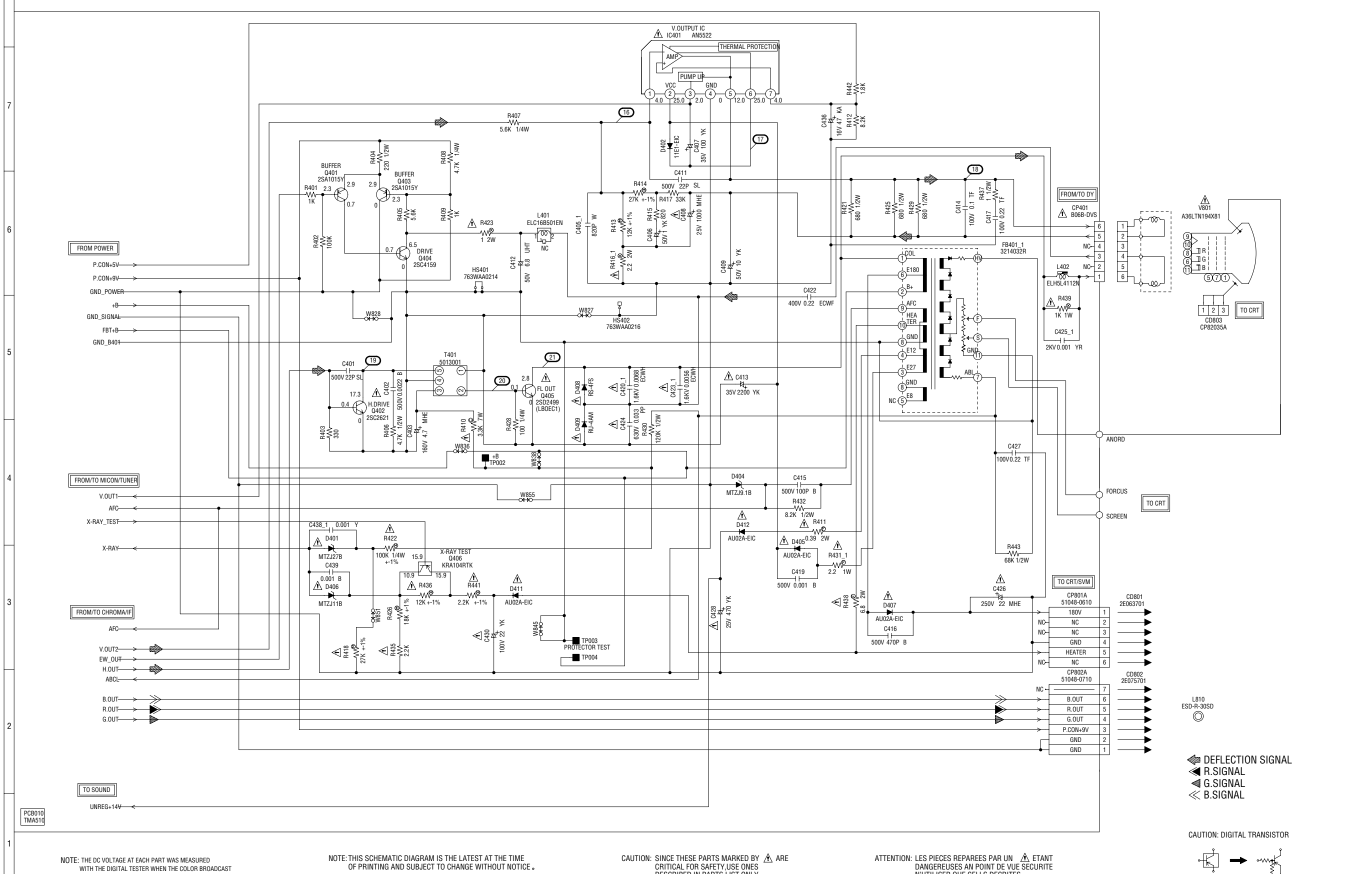



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

PCB010
TMA510

# DEFLECTION SCHEMATIC DIAGRAM
## (MAIN PCB)




CAUTION: DIGITAL TRANSISTOR

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

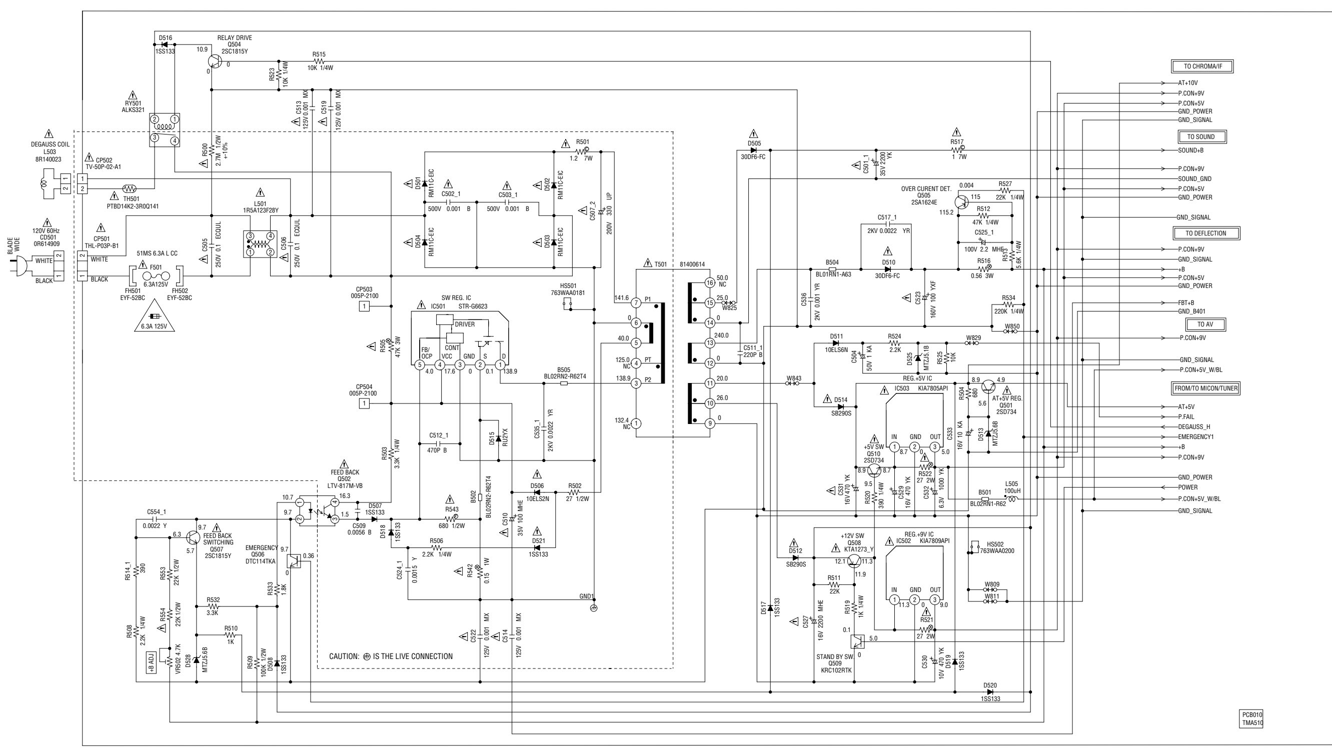
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AU POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

# POWER SCHEMATIC DIAGRAM
(MAIN PCB)

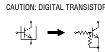
6.3A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V(F501)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V(F501)




CAUTION: DIGITAL TRANSISTOR



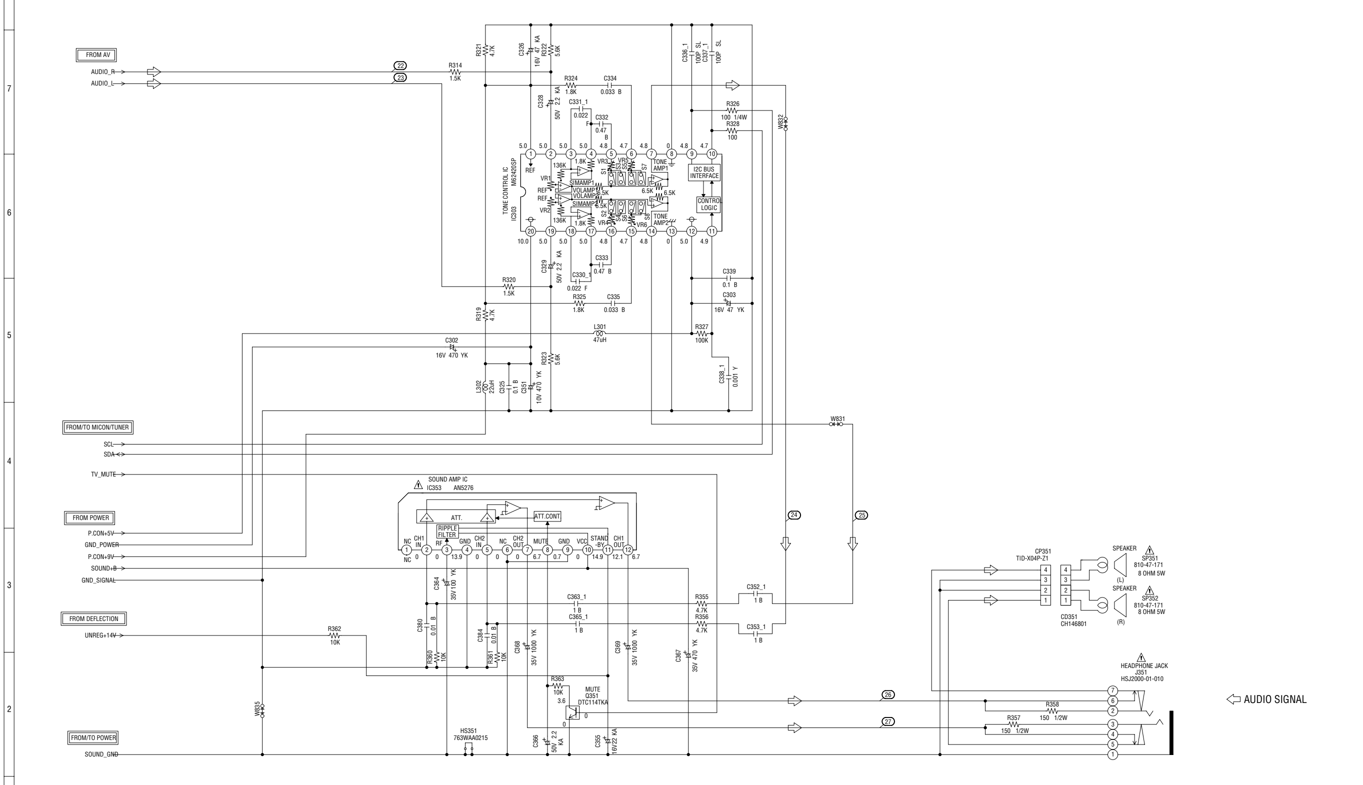
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

# SOUND SCHEMATIC DIAGRAM
(MAIN PCB)




NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

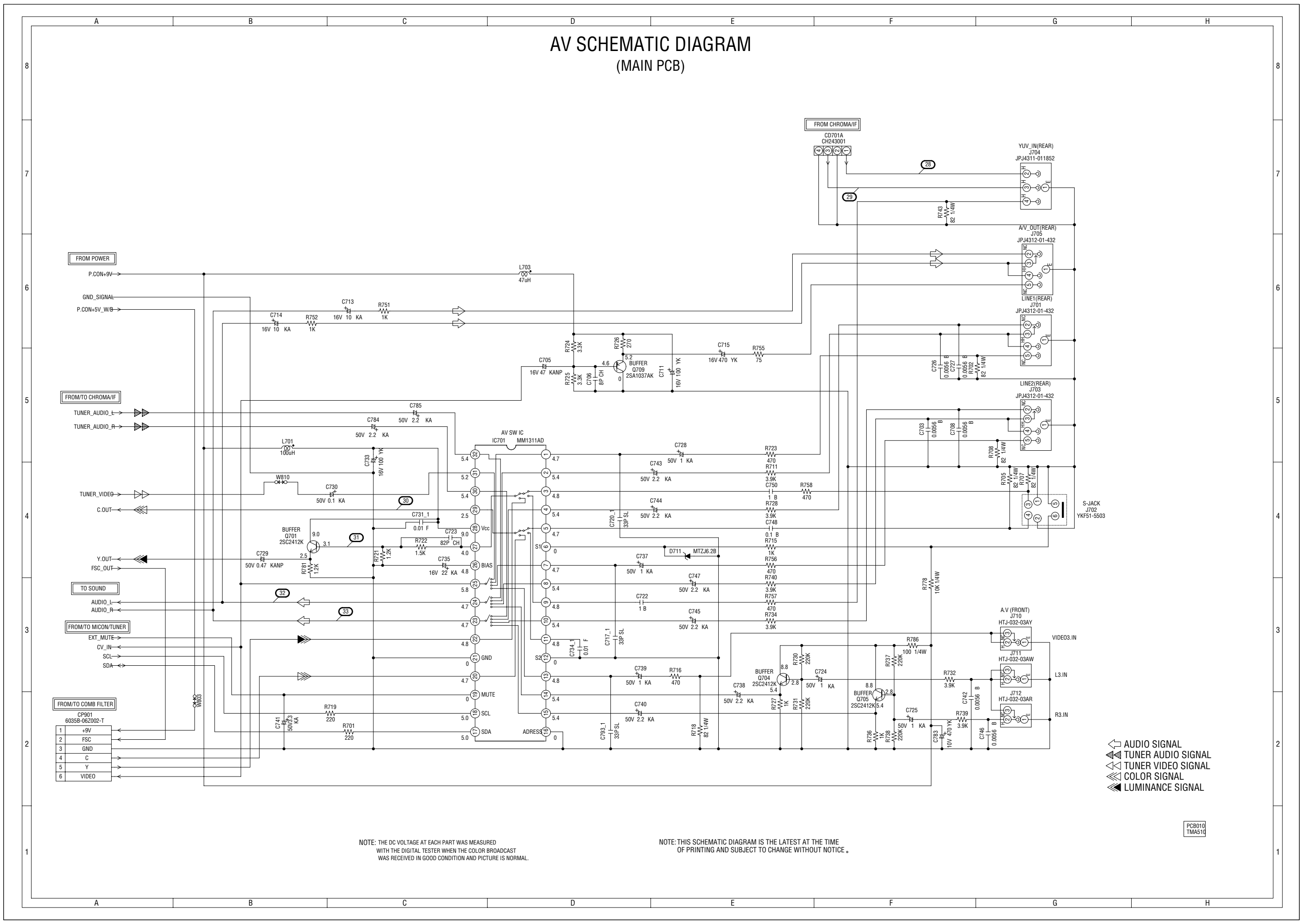
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

CAUTION: DIGITAL TRANSISTOR

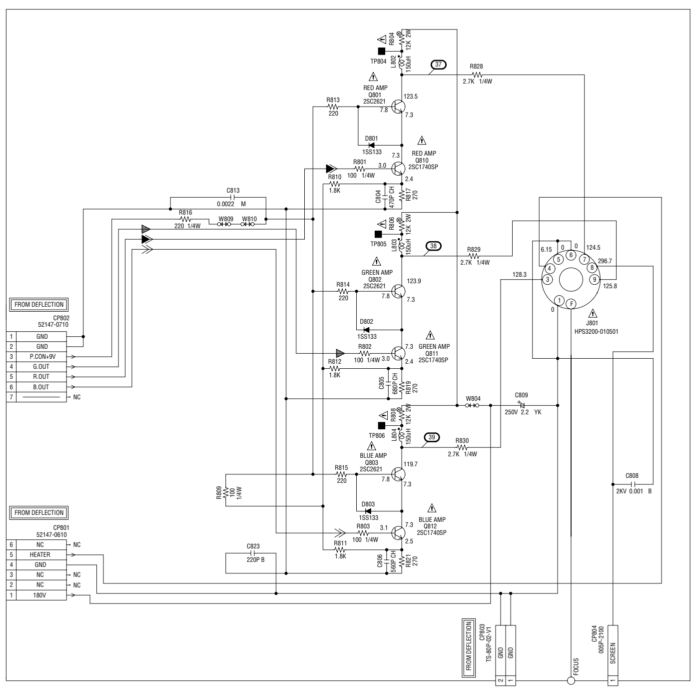
# AV SCHEMATIC DIAGRAM
(MAIN PCB)




NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

# CRT SCHEMATIC DIAGRAM
(CRT PCB)




PCB110
TCA365

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

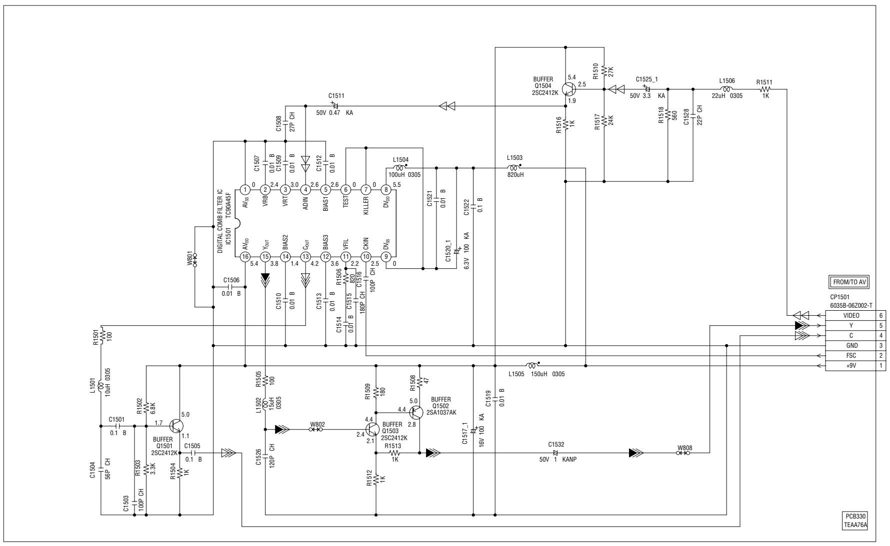
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

◀◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL

# DIGITAL COMB FILTER SCHEMATIC DIAGRAM

(COMB PCB)



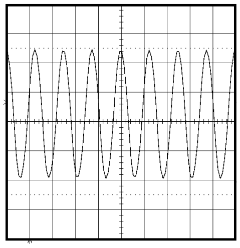
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

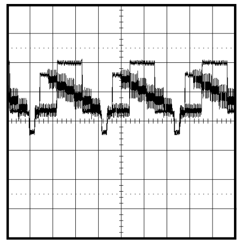
RECORD COLOR SIGNAL
RECORD LUMINANCE SIGNAL
TUNER VIDEO SIGNAL

# WAVEFORMS

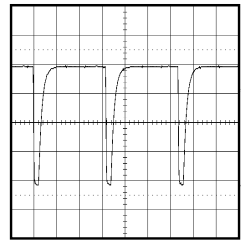
## MICON/TUNER



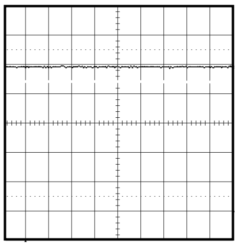
(1) 1V 0.1µs/div



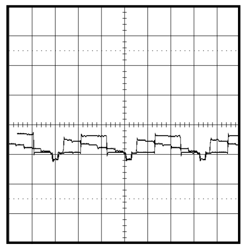
(6) 1V 20µs/div



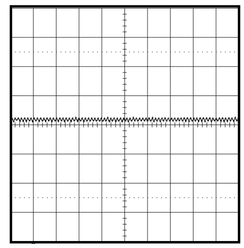
(11) 0.5V 20µs/div



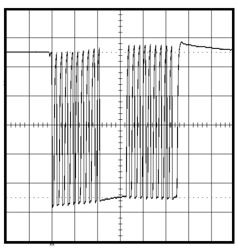
(2) 1V 1µs/div



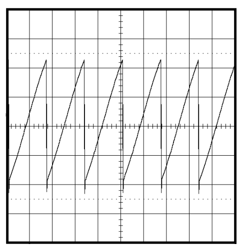
(7) 1V 20µs/div



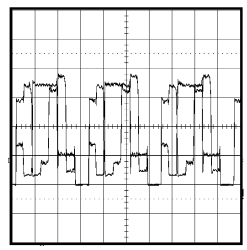
(12) 1V 2µs/div



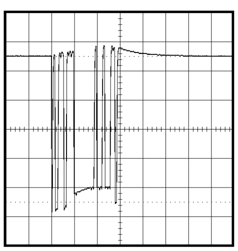
(3) 1V 50µs/div



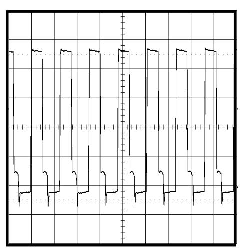
(8) 0.5V 10ms/div



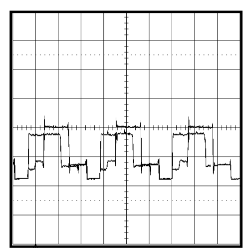
(13) 1V 20µs/div



(4) 1V 0.1ms/div

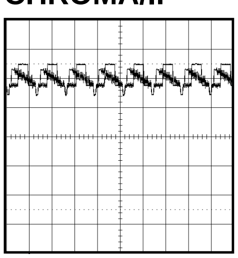


(9) 1V 50µs/div

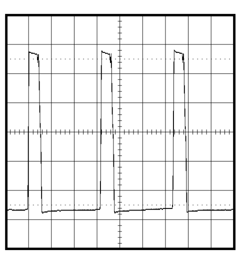


(14) 2V 20µs/div

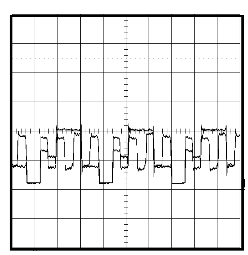
## CHROMA/IF



(5) 1V 50µs/div



(10) 2V 20µs/div

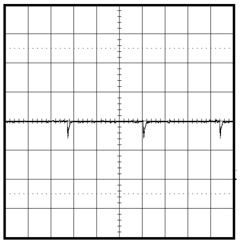


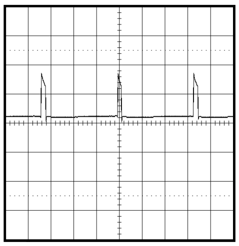
(15) 2V 20µs/div

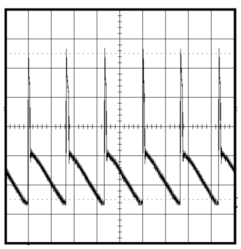
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

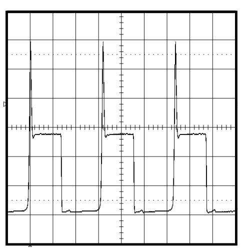
# WAVEFORMS

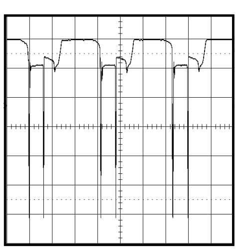
## DEFLECTION

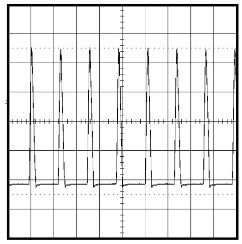

(16) 2V 5ms/div


(17) 20V 5ms/div

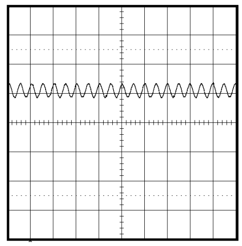

(18) 10V 10ms/div

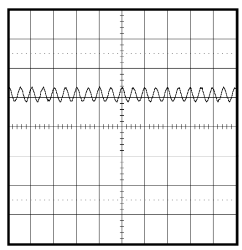

(19) 20V 20µs/div

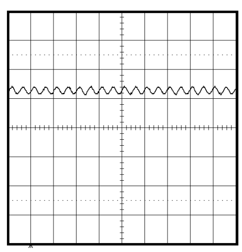

(20) 2V 20µs/div

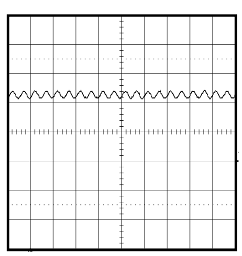

(21) 200V 50µs/div

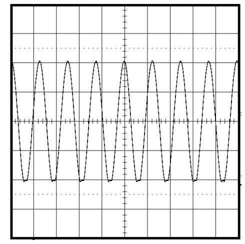
## SOUND

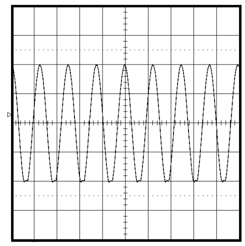

(22) 2V 5ms/div


(23) 2V 5ms/div

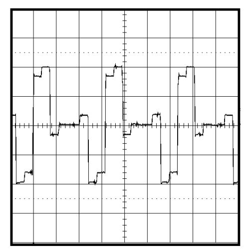

(24) 2V 5ms/div

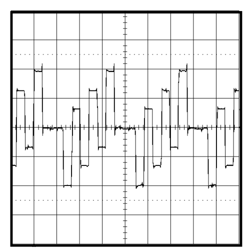

(25) 2V 5ms/div

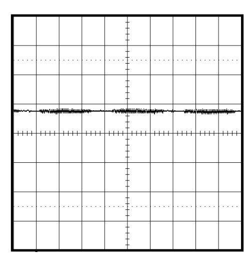

(26) 5V 2ms/div


(27) 5V 2ms/div

## AV

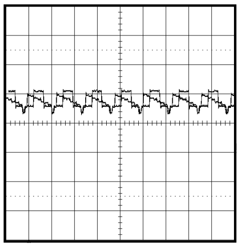

(28) 200mV 20µs/div


(29) 200mV 20µs/div

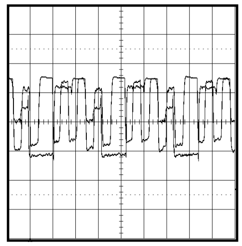

(30) 2V 20µs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

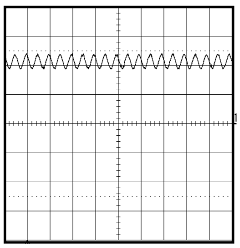
# WAVEFORMS



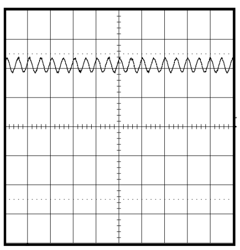
(31) 1V 50μs/div



(39) 50V 20μs/div

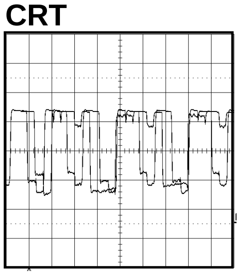


(32) 2V 5ms/div

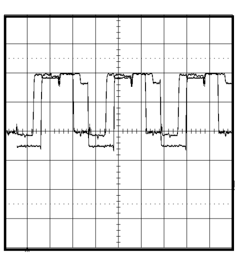


(33) 2V 5ms/div

**CRT**



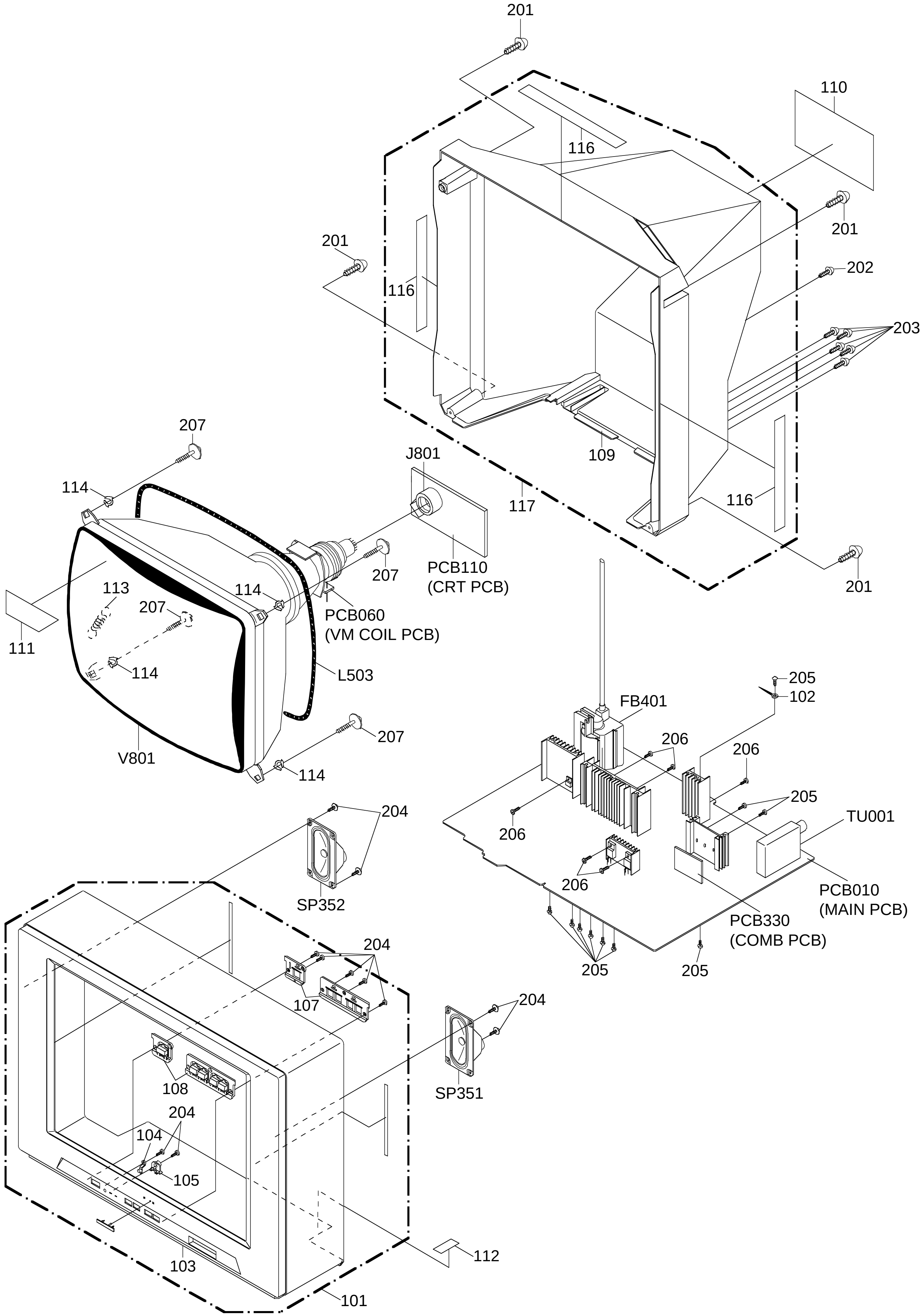
(37) 50V 20μs/div



(38) 50V 20μs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

# MECHANICAL EXPLODED VIEW



# MECHANICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| 101 | AD300823 | A3J702I720 | CABINET,FRONT ASSY | |
| 102 | BZ710039 | 8995034000 | CORD CLIP UL CO. | |
| 103 | AD300626 | 701WPJB281 | CABINET,FRONT | |
| 104 | AD300627 | 713WPA0116 | GUIDE,REMOCON | |
| 105 | AD300628 | 713WPA0117 | GLASS,LED | |
| 107 | AD300629 | 735WPAA189 | BUTTON,BASE | |
| 108 | AD300630 | 735WPBA102 | BUTTON,FRAME | |
| 109 | AD300714 | 702WPAA168 | CABINET,BACK ASS'Y | |
| 110 | AD300632 | 722549A016 | SHEET,RATING | |
| 111 | AD300633 | 723000B626 | FILM,DECORATION | |
| 112 | AD300007 | 7230006755 | SHEET,CAUTION | |
| 113 | BZ710009 | 741WUA0019 | SPRING,EARTH | |
| 114 | AD300135 | 769WSA0011 | WASHER CRT T=0.5 | |
| 116 | AD300134 | 800WQ00039 | FELT SHEET | |
| 117 | AD300824 | A3J702I740 | CABINET,BACK ASSY | |
| 201 | BZ710035 | 8117540A64 | SCREW,TAPPING(B0) TRUSS | 4x16 |
| 202 | BZ710262 | 8117540A04 | SCREW,TAPPING(B0) TRUSS | 4x10 |
| 203 | BZ710031 | 8110630A04 | SCREW,TAP TITE(P) BRAZIER | 3x10 |
| 204 | BZ710030 | 8110630804 | SCREW,TAP TITE(P) BRAZIER | 3x8 |
| 205 | BZ710019 | 8109630802 | SCREW,TAP TITE(B) BRAZIER | 3x8 |
| 206 | BZ710239 | 8109I30A04 | SCREW,TAP TITE(B) WH7 | 3x10 |
| 207 | BZ710383 | 8121J50C04 | SCREW,TAPPING(B0) GW15 | |
| --- | AD300634 | 792WHA0302 | PACKAGE,BOTTOM | |
| --- | AD300635 | 792WHA0303 | PACKAGE,TOP | |
| --- | AD300636 | 793WCDA979 | GIFT BOX | |
| --- | AD300637 | A3J702B975 | INSTRUCTION BOOK KIT | |
| --- | AD300436 | J3I70416 | IMPORTANT SAFETY INSTRUCTIONS | |
| --- | AD300022 | J3I70417 | REGISTRATION CARD | |
| --- | AD300023 | J3I70436 | ESP CARD | |
| --- | AD300638 | J3J70201 | INSTRUCTION BOOK | |
| --- | AD300437 | JA4UD400 | POLYBAG | |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **RESISTORS** | | |
| ⚠R001 | BZ210008 | R3X181273J | R,METAL OXIDE | 27K OHM 1W |
| ⚠R410 | AD300420 | R5X2CE332J | R,CEMENT | 3.3K OHM 7W |
| ⚠R411 | AD300032 | R6558AR39J | R,FUSE | 0.39 OHM 2W |
| R416 | AD300040 | R3X18A2R2J | R,METAL OXIDE | 2.2 OHM 2W |
| ⚠R418 | BZ210089 | R4X5T6273F | R,METAL | 27K OHM 1/6W |
| ⚠R422 | BZ210013 | R4X5T4104F | R,METAL | 100K OHM 1/4W |
| ⚠R423 | AD300042 | R3X18A010J | R,METAL OXIDE | 1 OHM 2W |
| ⚠R426 | BZ210114 | R4X5T6123F | R,METAL | 12K OHM 1/6W |
| ⚠R431 | AD300600 | R655812R2J | R,FUSE | 2.2 OHM 1W |
| ⚠R436 | BZ210114 | R4X5T6123F | R,METAL | 12K OHM 1/6W |
| ⚠R438 | AD300601 | R6358A6R8J | R,FUSE | 6.8 OHM 2W |
| ⚠R439 | AD300043 | R3X181102J | R,METAL OXIDE | 1K OHM 1W |
| ⚠R441 | AD300602 | R4X5T6222F | R,METAL | 2.2K OHM 1/6W |
| ⚠R500 | BZ210080 | R0G3K2275K | RC | 2.7M OHM 1/2W |
| ⚠R501 | BZ210031 | R5X2CE1R2J | R,CEMENT | 1.2 OHM 7W |
| ⚠R505 | AD300038 | R3X20B473J | R,METAL | 47K OHM 3W |
| R516 | AD300603 | R3X28BR56J | R,METAL OXIDE | 0.56 OHM 3W |
| ⚠R517 | AD300035 | R5X2CE010J | R,CEMENT | 1 OHM 7W |
| ⚠R521 | AD300041 | R3X18A270J | R,METAL OXIDE | 27 OHM 2W |
| ⚠R522 | AD300041 | R3X18A270J | R,METAL OXIDE | 27 OHM 2W |
| ⚠R542 | BZ210002 | R33681R15J | R,METAL | 0.15OHM 1W |
| ⚠R543 | BZ210049 | R635U2681J | R,FUSE | 680 OHM 1/2W |
| ⚠R554 | AD300604 | R002T2223J | RC | 22K OHM 1/2W |
| R638 | AD300705 | R3X181181J | R,METAL OXIDE | 180 OHM 1W |
| R639 | AD300706 | R001T6123J | RC | 12K OHM 1/6W |
| ⚠R804 | BZ210050 | R3X18A123J | R,METAL OXIDE | 12K OHM 2W |
| ⚠R806 | BZ210050 | R3X18A123J | R,METAL OXIDE | 12K OHM 2W |
| ⚠R808 | BZ210050 | R3X18A123J | R,METAL OXIDE | 12K OHM 2W |
| | | **CAPACITORS** | | |
| C368 | AD300067 | E02LF4102M | CE | 1000 UF 35V |
| C369 | AD300067 | E02LF4102M | CE | 1000 UF 35V |
| ⚠C408 | BZ110032 | E5EZF3102M | CE | 1000 UF 25V |
| C412 | BZ110057 | E53FF56R8K | CE | 6.8 UF 50V NP |
| ⚠C413 | AD300066 | E02LF4222M | CE | 2200 UF 35V |
| ⚠C420 | BZ110087 | P414F9682H | CMPP | 0.0068UF 1.6KV ECWH |
| C422 | AD300605 | P411F4224J | CMPP | 0.22 UF 400V ECWF |
| ⚠C423 | AD300606 | P414F9562H | CMPP | 0.0056UF 1.6KV ECWH |
| ⚠C424 | BZ110054 | P3N1F5333J | CPP | 0.033 UF 630V |
| C425 | AD300077 | C0JLYR713K | CC | 0.001 UF 2KV YR |
| ⚠C426 | AD300061 | E5EZFD220M | CE | 22 UF 250V |
| ⚠C428 | BZ110041 | E02LT3471M | CE | 470 UF 25V |
| ⚠C430 | AD300064 | E02LT8220M | CE | 22 UF 100V |
| ⚠C501 | AD300066 | E02LF4222M | CE | 2200 UF 35V |
| ⚠C502 | BZ110061 | C0JTB0513K | CC | 0.001 UF 500V B |
| ⚠C502 | BZ110061 | C0JTB0513K | CC | 0.001 UF 500V B |
| ⚠C503 | BZ110061 | C0JTB0513K | CC | 0.001 UF 500V B |
| ⚠C503 | BZ110061 | C0JTB0513K | CC | 0.001 UF 500V B |
| ⚠C505 | BZ110035 | P2122B104M | CMP | 0.1 UF 250V ECQUL |
| ⚠C506 | BZ110035 | P2122B104M | CMP | 0.1 UF 250V ECQUL |
| ⚠C507 | AD300607 | E51CGC331M | CE | 330 UF 200V |
| ⚠C510 | BZ110018 | E5EZT4101M | CE | 100 UF 35V |
| ⚠C513 | BZ110066 | C034E0J13M | CC | 0.001 UF 125V MX |
| ⚠C514 | BZ110066 | C034E0J13M | CC | 0.001 UF 125V MX |
| C517 | BZ110115 | C0JLYR7H3K | CC | 0.0022UF 2KV YR |
| ⚠C519 | BZ110066 | C034E0J13M | CC | 0.001 UF 125V MX |
| ⚠C522 | BZ110066 | C034E0J13M | CC | 0.001 UF 125V MX |
| C523 | AD300060 | E62NFB101M | CE | 100 UF 160V |
| ⚠C527 | AD300125 | E5EZF2222M | CE | 2200 UF 16V |
| ⚠C531 | BZ110081 | E02LT2471M | CE | 470 UF 16V |
| C535 | BZ110115 | C0JLYR7H3K | CC | 0.0022UF 2KV YR |
| C536 | AD300077 | C0JLYR713K | CC | 0.001 UF 2KV YR |
| C611 | AD300439 | P6M9T0474J | CMPL | 0.47 UF 50V TF |
| C643 | AD300707 | E50HT2470M | CE | 47 UF 16 V |
| C808 | AD300078 | C0JBB0713K | CC | 0.001 UF 2KV B |
| | | **DIODES** | | |
| D001 | AD300072 | D94TA30013 | DIODE,ZENER | HZ30-3L TD |
| D102 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D103 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D104 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D107 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D108 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D109 | BZ410054 | 0021721150 | LED | SLR-342VCT32 |
| D201 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| ⚠D401 | AD300069 | D97U02701B | DIODE,ZENER | MTZJ27B T-77 |
| D402 | BZ410043 | D2WT011E10 | DIODE,SILICON | 11E1-EIC |
| D404 | BZ410023 | D97U09R11B | DIODE,ZENER | MTZJ9.1B T-77 |
| ⚠D405 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **DIODES** | | |
| ⚠ D406 | AD300071 | D97U01101B | DIODE,ZENER | MTZJ11B T-77 |
| ⚠ D407 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| ⚠ D408 | AD300074 | D2BFRS4FS0 | DIODE,SILICON | RS-4FS |
| ⚠ D409 | AD300073 | D2BFRU4AM0 | DIODE,SILICON | RU-4AM |
| ⚠ D411 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| ⚠ D412 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| ⚠ D501 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠ D502 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠ D503 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠ D504 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠ D505 | AD300076 | D28F30DF60 | DIODE RECTIFIER | 30DF6-FC |
| ⚠ D506 | BZ410011 | D28TELS2N2 | DIODE RECTIFIER | 10ELS2N-TA1B2 |
| D507 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D508 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠ D510 | AD300076 | D28F30DF60 | DIODE RECTIFIER | 30DF6-FC |
| D511 | AD300075 | D28TELS6N6 | DIODE RECTIFIER | 10ELS6N-TA1B2 |
| ⚠ D512 | BZ410076 | D2WXB290S0 | DIODE,SILICON | SB290S |
| D513 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| ⚠ D514 | BZ410076 | D2WXB290S0 | DIODE,SILICON | SB290S |
| D515 | BZ410047 | D2BTRU2YX0 | DIODE,SILICON | RU2YX-V1 |
| D516 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D517 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D518 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D519 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D520 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠ D521 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D525 | BZ410020 | D97U05R11B | DIODE,ZENER | MTZJ5.1B T-77 |
| D528 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D602 | BZ410066 | D97U06R21B | DIODE,ZENER | MTZJ6.2B T-77 |
| D603 | BZ410066 | D97U06R21B | DIODE,ZENER | MTZJ6.2B T-77 |
| D604 | BZ410066 | D97U06R21B | DIODE,ZENER | MTZJ6.2B T-77 |
| D605 | BZ410043 | D2WT011E10 | DIODE,SILICON | 11E1-EIC |
| D611 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D613 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D614 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D711 | BZ410066 | D97U06R21B | DIODE,ZENER | MTZJ6.2B T-77 |
| D801 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D802 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D803 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| | | **ICS** | | |
| IC101 | AD300051 | I56D07054A | IC | OEC7054A |
| IC103 | AD300050 | I9UJ0T600C | IC | PST600C |
| IC199 | AD300608 | A3J702B015 | IC | S-24C08ADPA-01 |
| IC201 | AD300058 | I05DC12530 | IC | TB1253N |
| IC303 | BZ611034 | I06DF62420 | IC | M62420SP |
| ⚠ IC353 | AD300056 | I0FSP52760 | IC | AN5276 |
| ⚠ IC401 | BZ611053 | I01TD55220 | IC | AN5522 |
| ⚠ IC501 | BZ611041 | I2BT066230 | IC | STR-G6623 |
| ⚠ IC502 | BZ611033 | I1KA97809A | IC | KIA7809API |
| ⚠ IC503 | BZ611015 | I1KA97805A | IC | KIA7805API |
| IC701 | AD300054 | I0UD013110 | IC | MM1311AD |
| IC902 | AD300059 | I01FF58290 | IC | AN5829S |
| IC1501 | AD300609 | I05FE90A45 | IC | TC90A45F |
| | | **TRANSISTORS** | | |
| Q101 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q102 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q103 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102RTK |
| Q104 | BZ510024 | TNYTJ03001 | COMPOUND TRANSISTOR | DTC114TSTP |
| Q105 | BZ510025 | TPYJB05001 | COMPOUND TRANSISTOR | DTA114EKAT146 |
| Q109 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q201 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q202 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q203 | BZ510001 | T6YJ1037K0 | TRANSISTOR,SILICON | 2SA1037AKT146R,S |
| Q204 | AD300030 | T83A028140 | TRANSISTOR,SILICON | 2SC2814(F3,F4)-T |
| Q351 | BZ510022 | TNYJJ05001 | COMPOUND TRANSISTOR | DTC114TKAT146 |
| Q401 | BZ510034 | TA5T010154 | TRANSISTOR,SILICON | 2SA1015Y(TPE2) |
| ⚠ Q402 | BZ510027 | TC3Q026210 | TRANSISTOR,SILICON | 2SC2621(D,E)-RAC |
| Q403 | BZ510034 | TA5T010154 | TRANSISTOR,SILICON | 2SA1015Y(TPE2) |
| Q404 | AD300027 | TC30041590 | TRANSISTOR,SILICON | 2SC4159(D,E) |
| ⚠ Q405 | BZ510040 | TDUU024990 | TRANSISTOR,SILICON | 2SD2499(LBOEC1) |
| Q406 | AD300610 | TPAAD05003 | COMPOUND TRANSISTOR | KRA104RTK |
| ⚠ Q501 | BZ510031 | TD3T007340 | TRANSISTOR,SILICON | 2SD734(E,F)-AA |
| ⚠ Q502 | BZ410088 | 0002E00610 | PHOTO COUPLER | LTV-817M-VB |
| Q504 | BZ510012 | TC5T018154 | TRANSISTOR,SILICON | 2SC1815Y(TPE2) |
| Q505 | BZ510030 | TA3T01624E | TRANSISTOR,SILICON | 2SA1624E-AA |
| Q506 | BZ510024 | TNYTJ03001 | COMPOUND TRANSISTOR | DTC114TSTP |
| ⚠ Q507 | BZ510012 | TC5T018154 | TRANSISTOR,SILICON | 2SC1815Y(TPE2) |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **TRANSISTORS** | | |
| ⚠Q508 | AD300611 | TAAT01273Y | TRANSISTOR,SILICON | KTA1273_Y |
| Q509 | BZ510071 | TNAAB05003 | COMPOUND TRANSISTOR | KRC102RTK |
| ⚠Q510 | BZ510031 | TD3T007340 | TRANSISTOR,SILICON | 2SD734(E,F)-AA |
| Q604 | BZ510024 | TNYTJ03001 | COMPOUND TRANSISTOR | DTC114TSTP |
| Q701 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q704 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q705 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q709 | BZ510001 | T6YJ1037K0 | TRANSISTOR,SILICON | 2SA1037AKT146R,S |
| ⚠Q801 | BZ510027 | TC3Q026210 | TRANSISTOR,SILICON | 2SC2621(D,E)-RAC |
| ⚠Q802 | BZ510027 | TC3Q026210 | TRANSISTOR,SILICON | 2SC2621(D,E)-RAC |
| ⚠Q803 | BZ510027 | TC3Q026210 | TRANSISTOR,SILICON | 2SC2621(D,E)-RAC |
| ⚠Q810 | AD300442 | TCYT1740S0 | TRANSISTOR,SILICON | 2SC1740SP TP |
| ⚠Q811 | AD300442 | TCYT1740S0 | TRANSISTOR,SILICON | 2SC1740SP TP |
| ⚠Q812 | AD300442 | TCYT1740S0 | TRANSISTOR,SILICON | 2SC1740SP TP |
| Q1501 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q1502 | BZ510001 | T6YJ1037K0 | TRANSISTOR,SILICON | 2SA1037AKT146R,S |
| Q1503 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q1504 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| | | **COILS &TRANSFORMERS** | | |
| L001 | BZ310078 | 021LA6R68M | COIL | 0.68 UH |
| L101 | AD300121 | 021LA62R7K | COIL | 2.7 UH |
| L201 | BZ310041 | 02167F101J | COIL | 100 UH |
| L202 | AD300127 | 02161CR82M | COIL | 0.82 UH |
| L203 | BZ310009 | 021LA62R2K | COIL | 2.2 UH |
| L204 | BZ310038 | 021LA6120K | COIL | 12 UH |
| L205 | BZ310003 | 021673470K | COIL | 47 UH |
| L301 | BZ310029 | 021LA6470K | COIL | 47 UH |
| L302 | BZ310058 | 021LA6220K | COIL | 22 UH |
| L401 | AD300117 | 02D1000001 | COIL | ELC16B501EN |
| L402 | BZ310013 | 0221000013 | COIL,LINEARITY | ELH5L4112N |
| ⚠L501 | AD300119 | 029T000097 | COIL,LINE FILTER | 1R5A123F28Y |
| ⚠L503 | BZ310116 | 028R140023 | COIL,DEGAUSS | 8R140023 |
| L505 | BZ310002 | 021673101K | COIL | 100 UH |
| L601 | BZ310003 | 021673470K | COIL | 47 UH |
| L602 | BZ310002 | 021673101K | COIL | 100 UH |
| L603 | BZ310003 | 021673470K | COIL | 47 UH |
| L604 | BZ310003 | 021673470K | COIL | 47 UH |
| L701 | BZ310001 | 021673101J | COIL | 100 UH |
| L703 | BZ310003 | 021673470K | COIL | 47 UH |
| L802 | AD300123 | 021673151K | COIL | 150 UH |
| L803 | AD300123 | 021673151K | COIL | 150 UH |
| L804 | AD300123 | 021673151K | COIL | 150 UH |
| L810 | AD300118 | 02AXB9A971 | CORE FERRITE | ESD-R-30SD |
| L901 | BZ310058 | 021LA6220K | COIL | 22 UH |
| L1501 | AD300612 | 02167F100J | COIL | 10 UH |
| L1502 | AD300613 | 02167F150J | COIL | 15 UH |
| L1503 | AD300614 | 021673821K | COIL | 820 UH |
| L1504 | BZ310041 | 02167F101J | COIL | 100 UH |
| L1505 | AD300615 | 02167F151J | COIL | 150 UH |
| L1506 | BZ310039 | 02167F220J | COIL | 22 UH |
| T401 | BZ310072 | 045013001J | TRANS,HORIZONTAL DRIVE | 5013001 |
| ⚠T501 | AD300115 | 0481400614 | TRANSFORMER,SWITCHING | 81400614 |
| | | **JACKS** | | |
| ⚠J351 | BZ614144 | 0602131011 | HEADPHONE JACK | HSJ2000-01-010 |
| J701 | AD300113 | 0602431011 | JACK RCA | JPJ4312-01-432 |
| J702 | AD300108 | 063Q700002 | JACK | YKF51-5503 |
| J703 | AD300113 | 0602431011 | JACK RCA | JPJ4312-01-432 |
| J704 | AD300109 | 060X411015 | RCA JACK | JPJ4311-011852 |
| J705 | AD300113 | 0602431011 | JACK RCA | JPJ4312-01-432 |
| J710 | AD300110 | 060G401047 | RCA JACK | HTJ-032-03AY |
| J711 | AD300111 | 060G401046 | RCA JACK | HTJ-032-03AW |
| J712 | AD300112 | 060G401039 | RCA JACK | HTJ-032-03AR |
| ⚠J801 | BZ614004 | 066X120014 | SOCKET,CATHODE RAY TUBE | HPS3200-010501 |
| | | **SWITCHES** | | |
| SW101 | BZ612001 | 0504201T31 | SWITCH,TACT | SKHVBED010 |
| SW102 | BZ612001 | 0504201T31 | SWITCH,TACT | SKHVBED010 |
| SW103 | BZ612001 | 0504201T31 | SWITCH,TACT | SKHVBED010 |
| SW104 | BZ612001 | 0504201T31 | SWITCH,TACT | SKHVBED010 |
| SW105 | BZ612001 | 0504201T31 | SWITCH,TACT | SKHVBED010 |
| | | **VARIABLE RESISTORS** | | |
| VR502 | BZ210068 | V1163Q3BTC | VOLUME,SEMI FIXED | EVNCYAA03BQ3 |
| | | **P.C.BOARD ASSEMBLIES** | | |
| PCB010 | AD300819 | A3J702I01A | PCB ASS'Y | TMA510A |
| PCB060 | AD300820 | A3J702I06A | PCB ASS'Y | TEXA52A |
| PCB110 | AD300821 | A3J702I11A | PCB ASS'Y | TCA365A |
| PCB330 | AD300822 | A3J702I33A | PCB ASS'Y | TEAA76A |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | | **MISCELLANEOUS** | |
| B501 | BZ310045 | 024AT03481 | CORE,BEADS | BL02RN1-R62T2 |
| B502 | BZ310015 | 024AT03482 | CORE,BEADS | BL02RN2-R62T4 |
| B504 | BZ310016 | 024AT03655 | CORE BEADS | BL01RN1-A63T6 |
| B505 | BZ310015 | 024AT03482 | CORE,BEADS | BL02RN2-R62T4 |
| CD351 | AD300620 | 06CH14396A | CORD CONNECTOR | CH14396A |
| ⚠ CD501 | BZ614053 | 120R614909 | CORD AC | 0R614909 |
| CD701A | AD300622 | 06CH243001 | CORD CONNECTOR | CH243001 |
| CD801 | AD300085 | 122E063701 | CORD JUMPER | 2E063701 |
| CD802 | AD300084 | 122E075701 | CORD JUMPER | 2E075701 |
| ⚠ CD803 | BZ614122 | 06CP82035A | CORD CONNECTOR | CP82035A |
| CF201 | BZ613015 | 1011T4R504 | FILTER,CERAMIC | EFCT4R5YS5A |
| CF202 | AD300621 | 1022T45R73 | FILTER,SAW | SAFGP45M7VHCZR |
| CF202 | AD300621 | 1022T45R73 | FILTER,SAW | SAFGP45M7VHCZR |
| CF203 | BZ613016 | 1011T4R517 | FILTER,CERAMIC | EFCT4R5MW5 |
| CF204 | AD300513 | 1012T04702 | FILTER,CERAMIC TRAP | MKT47.3MC110P-TF |
| CP101 | BZ614135 | 0694260139 | CONNECTOR PCB SIDE | 173979-6 |
| CP351 | AD300097 | 069W14T299 | CONNECTOR PCB SIDE | TID-X04P-Z1 |
| ⚠ CP401 | AD300095 | 069X460029 | CONNECTOR PCB SIDE | B06B-DVS |
| ⚠ CP501 | BZ614012 | 0697320039 | CORD UX CONNECTOR | THL-P03P-B1 |
| ⚠ CP502 | BZ614018 | 069W420029 | CONNECTOR PCB SIDE | TV-50P-02-A1 |
| CP503 | BZ614058 | 069W010010 | CONNECTOR PCB SIDE | 005P-2100 |
| CP504 | BZ614058 | 069W010010 | CONNECTOR PCB SIDE | 005P-2100 |
| CP801 | AD300099 | 069R260589 | CONNECTOR PCB SIDE | 52147-0610 |
| CP802 | AD300098 | 069R270589 | CONNECTOR PCB SIDE | 52147-0710 |
| CP803 | BZ614017 | 069W320018 | CONNECTOR PCB SIDE | TS-80P-02-V1 |
| CP804 | BZ614058 | 069W010010 | CONNECTOR PCB SIDE | 005P-2100 |
| CP901 | AD300102 | 069J160260 | CONNECTOR PCB SIDE | 6035B-06Z002-T |
| CP1501 | AD300102 | 069J160260 | CONNECTOR PCB SIDE | 6035B-06Z002-T |
| CP801A | AD300105 | 067R006019 | WIRE HOLDER | 51048-0610 |
| CP802A | AD300104 | 067R007019 | WIRE HOLDER | 51048-0710 |
| EL001 | BZ614044 | 124120301A | EYE LET | XRY20X30BD |
| EL002 | BZ614043 | 124116281A | EYE LET | XRY16X28BD |
| ⚠ F501 | BZ614125 | 081PC6R304 | FUSE | 51MS063LCC |
| ⚠ FB401 | BZ310123 | 043214032R | TRANSFORMER,FLYBACK | 3214032R |
| FH501 | BZ614005 | 06710T0006 | HOLDER,FUSE | EYF-52BC |
| FH502 | BZ614005 | 06710T0006 | HOLDER,FUSE | EYF-52BC |
| OS101 | BZ614171 | 077Q014003 | REMOTE RECEIVER | PIC-28143SY-2 |
| ⚠ RY501 | AD300114 | 0560V20115 | RELAY | ALKS321 |
| ⚠ SP351 | BZ614029 | 070C533008 | SPEAKER | 810-47-171 |
| ⚠ SP352 | BZ614029 | 070C533008 | SPEAKER | 810-47-171 |
| ⚠ TH501 | AD300068 | DF40B3R0Q0 | DEGAUSS ELEMENT | PTBD14K2-3R0Q141 |
| TM101 | AD300091 | 07660DU010 | TRANSMITTER | SBKMOP006A |
| ⚠ TU001 | BZ610125 | 0145K00055 | TUNER,VHF-UHF | TECC1040PG32D |
| ⚠ V801 | AD300623 | 09811404B8 | CRT W/DY | A36LTN194X81 |
| X101 | AD300624 | 1001T8R004 | CERAMIC,OSCILLATOR | EFOEC8004T4 |
| X601 | BZ613004 | 100CT3R505 | CRYSTAL | HC-49/C |

RESISTOR

RC................... CARBON RESISTOR

CAPACITORS

CC................... CERAMIC CAPACITOR
CE................... ALUMI ELECTROLYTIC CAPACITOR
CP................... POLYESTER CAPACITOR
CPP.................. POLYPROPYLENE CAPACITOR
CPL.................. PLASTIC CAPACITOR
CMP.................. METAL POLYESTER CAPACITOR
CMPL................ METAL PLASTIC CAPACITOR
CMPP................ METAL POLYPROPYLENE CAPACITOR

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